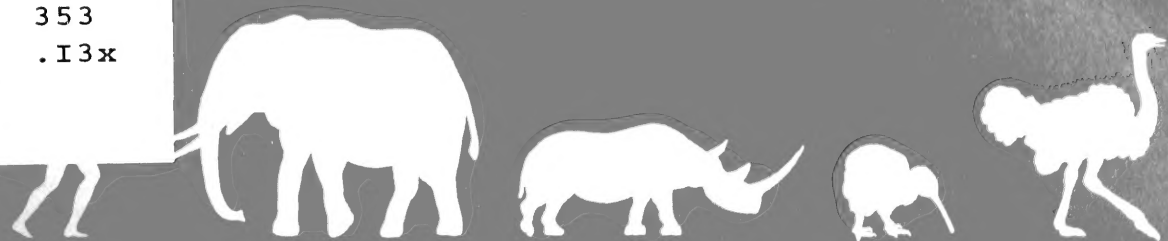
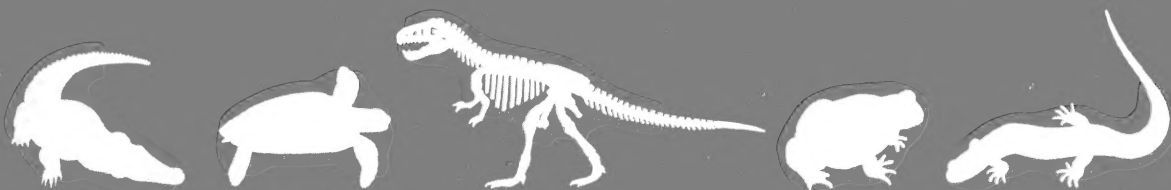


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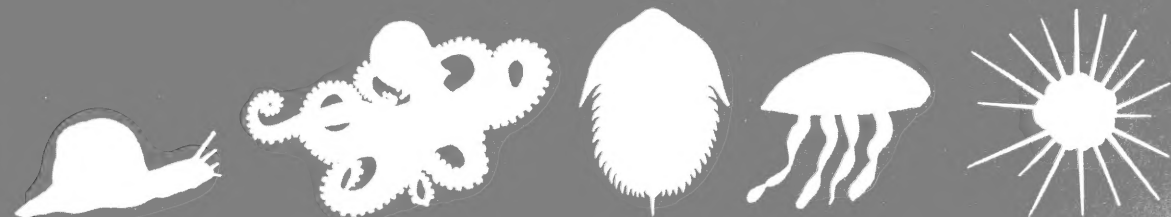
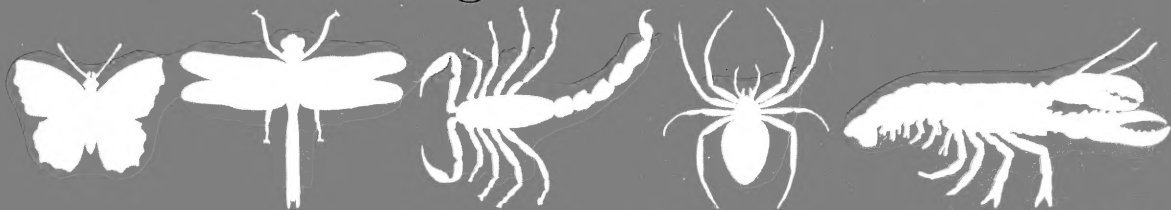
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30 March 2001

Notices

(a) *Invitation to comment.* The Commission is authorised to vote on applications published in the *Bulletin of Zoological Nomenclature* six months after their publication but this period is normally extended to enable comments to be submitted. Any zoologist who wishes to comment on any of the applications is invited to send his contribution to the Executive Secretary of the Commission as quickly as possible.

(b) *Invitation to contribute general articles.* At present the *Bulletin* comprises mainly applications concerning names of particular animals or groups of animals, resulting comments and the Commission's eventual rulings (Opinions). Proposed amendments to the Code are also published for discussion.

Articles or notes of a more general nature are actively welcomed provided that they raise nomenclatural issues, although they may well deal with taxonomic matters for illustrative purposes. It should be the aim of such contributions to interest an audience wider than some small group of specialists.

(c) *Receipt of new applications.* The following new applications have been received since going to press for volume 57, part 4 (published on 21 December 2000). Under Article 82 of the Code, existing usage is to be maintained until the ruling of the Commission is published.

- (1) *Hippotragus* Sundervall, 1845 (Mammalia, Artiodactyla): proposed conservation. (Case 3178). P. Grubb.
- (2) *Halacarus* Gosse, 1855, *H. ctenopus* Gosse, 1855 and *Thalassarachna* Packard, 1871 (Arachnida, Acari): proposed conservation of usage of the names by the designation of a neotype for *H. ctenopus*. (Case 3179). I. Bartsch.
- (3) *Strombus wilsoni* Abbott, 1967 and *S. wilsonorum* Petuch, 1994 (Mollusca, Gastropoda): proposed conservation of the specific names. (Case 3180). J.H. Leal.
- (4) *Cryptotermes dudleyi* Banks, 1918 (Insecta, Isoptera): proposed precedence of the specific name over that of *Calotermes* (*Cryptotermes*) *jacobsoni* Holmgren, 1913. (Case 3181). M.S. Engel & K. Krishna.
- (4) *Squilla scabricauda* Lamarck, 1818 (currently *Lysiosquilla scabricauda*; Crustacea, Stomatopoda): proposed conservation of the specific name. (Case 3182). L.B. Holthuis.
- (5) *Pagurus clypeatus* Fabricius, 1787 (currently *Coenobita clypeatus*; Crustacea, Decapoda): proposed replacement of the syntypes by a neotype. (Case 3183). P.A. McLaughlin & L.B. Holthuis.
- (6) *Criconema* Höfmann & Menzel, 1914 (Nematoda): proposed designation of *Eubostrichus guernei* Certes, 1899 as the type species. (Case 3185). P.A.A. Loof, I. Andrassy, M. Luc, D.J. Raski, M.R. Siddiqi & W.M. Wouts.

- (7) *Squalus edwardsii* Schinz, 1822 (currently *Haploblepharus edwardsii*; Chondrichthyes, Carchariniformes): proposed conservation of *edwardsii* as the correct original spelling of the specific name. (Case 3186). M.J.P. van Oijen.
- (8) *Isospora* Schneider, 1881 (Protista, Apicomplexa): proposed designation of *I. suis* Biester, 1934 as the type species. (Case 3187). D. Modrý.
- (d) *Rulings of the Commission*. Each Opinion published in the *Bulletin* constitutes an official ruling of the International Commission on Zoological Nomenclature, by virtue of the votes recorded, and comes into force on the day of publication of the *Bulletin*.

The International Commission on Zoological Nomenclature and its publications

The International Commission on Zoological Nomenclature was established in 1895 by the third International Congress of Zoology, and at present consists of 24 zoologists from 19 countries whose interests cover most of the principal divisions (including palaeontology) of the animal kingdom. The Commission is under the auspices of the International Union of Biological Sciences (IUBS), and members are elected by secret ballot of zoologists attending General Assemblies of IUBS or Congresses of its associated bodies. Casual vacancies may be filled between Congresses. Nominations for membership may be sent to the Commission Secretariat at any time.

The International Code of Zoological Nomenclature has one fundamental aim, which is to provide 'the maximum universality and continuity in the scientific names of animals compatible with the freedom of scientists to classify animals according to taxonomic judgments'. The Fourth Edition was published in August 1999 by the International Trust for Zoological Nomenclature, acting on behalf of the Commission; its provisions came into effect on 1 January 2000 and supersede those of the previous (1985) edition. Official texts are available in English, French, German, Japanese, Russian and Spanish. Details of how to obtain the Code are given on page 5.

Observance of the rules in the *Code* enables a biologist to arrive at the valid name for any animal taxon between and including the ranks of subspecies and superfamily. Its provisions can be waived or modified in their application to a particular case when strict adherence would cause confusion; however, this must never be done by an individual but only by the Commission, acting on behalf of all zoologists. The Commission takes such action in response to proposals submitted to it; applications should follow the instructions in the *Bulletin of Zoological Nomenclature*, and assistance will be given by the Secretariat.

The *Bulletin* is published four times each year (subscription for volume 58 for 2001 is £115 or \$210). It contains applications for Commission action, as described above; their publication is an invitation for any person to contribute comments or counter-suggestions, which may also be published. The Commission makes a ruling (called an Opinion) on a case only after a suitable period for comments. All Opinions are published in the *Bulletin*, which also contains articles and notes relevant to zoological nomenclature; such contributions are invited and should be sent to the Secretariat.

The Commission's rulings are summarised in *The Official Lists and Indexes of Names and Works in Zoology*. A single volume covering the period 1895–1985 was published in 1987, and a Supplement updating the period to 2000 has been published in March 2001. Details of how to obtain the 1987 volume and its Supplement are given on page 6.

In addition to dealing with applications and other formal matters, the Commission's Secretariat is willing to help with advice on any question which may have nomenclatural (as distinct from purely taxonomic) implications.

The International Trust for Zoological Nomenclature is a charity (not-for-profit company) registered in the U.K. The Secretariat of the Commission is based in London, and the Trust is established there to handle the financial affairs of the Commission. The sale of publications covers less than half of the costs of the service given to zoology by the Commission. Support is given by academies, research councils, institutions and societies from a number of countries, and also by individuals; despite this assistance the level of income remains a severe constraint. Donations to the Trust are gratefully received and attention is drawn to the possible tax advantage of legacies.

For a more detailed discussion of the Commission and its activities and publications see BZN 48: 295–299 (December 1991). A Centenary History of the Commission — *Towards Stability in the Names of Animals* — describes the development of zoological nomenclature and the role of the Commission; it was published in 1995 (price £30 or \$50).

Copies of the books listed above may be ordered from: ITZN, c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk) or AAZN, MRC-159, National Museum of Natural History, Washington, D.C. 20560–0159, U.S.A. (e-mail: smith.davidg@nmnh.si.edu). Details of discounts available are given on page 5 of this issue of the *Bulletin*.

Addresses of members of the Commission

Dr M. ALONSO-ZARAZAGA *Museo Nacional de Ciencias Naturales, José Gutiérrez Abascal 2, E-28006 Madrid, Spain*

Prof W.J. BOCK *Department of Biological Sciences, Columbia University, 1200 Amsterdam Avenue, Mail Box 5521, New York, NY 10027, U.S.A.*

Prof P. BOUCHET *Muséum National d'Histoire Naturelle, 55 rue de Buffon, 75005 Paris, France (Councillor)*

Prof D.J. BROTHERS *Department of Zoology and Entomology, University of Natal Pietermaritzburg, Private Bag X01, Scottsville, 3209 South Africa (Councillor)*

Dr D.R. CALDER *Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario, Canada M5S 2C6*

Dr H.G. COGGER *c/o Australian Museum, 6 College Street, Sydney South, N.S.W. 2000, Australia*

Prof C. DUPUIS *Muséum National d'Histoire Naturelle, 45 rue de Buffon, 75005 Paris, France*

Dr W.N. ESCHMEYER *Department of Ichthyology, California Academy of Sciences, Golden Gate Park, San Francisco, California 94118–4599, U.S.A. (Vice-President)*

Dr I.M. KERZHNER *Zoological Institute, Russian Academy of Sciences, St Petersburg 199034, Russia (Councillor)*

- Prof Dr O. KRAUS *Zoologisches Institut und Zoologisches Museum, Martin-Luther-King-Platz 3, D-20146 Hamburg, Germany* (Councillor)
- Prof Dr G. LAMAS *Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Apartado 14-0434, Lima-14, Peru*
- Dr E. MACPHERSON *Centro d'Estudios Avançats de Blanes (C.S.I.C.), Cami de Santa Barbara s/n, 17300 Blanes, Girona, Spain*
- Dr V. MAHNERT *Muséum d'Histoire Naturelle, Case postale 434, CH-1211 Genève 6, Switzerland*
- Prof U.R. MARTINS DE SOUZA *Museu de Zoologia, Universidade de São Paulo, Caixa Postal 42694, 04299-970 — São Paulo — SP, Brazil*
- Prof S.F. MAWATARI *Zoological Institute, Faculty of Science, Hokkaido University, Sapporo 060, Japan*
- Prof A. MINELLI *Dipartimento di Biologia, Università di Padova, Via Trieste 75, 35121 Padova, Italy* (President)
- Dr P.K.L. NG *Department of Biological Sciences, National University of Singapore, Kent Ridge, Singapore 119260*
- Dr C. NIELSEN *Zoologisk Museum, Universitetsparken 15, DK-2100 København, Denmark*
- Dr L. PAPP *Hungarian Museum of Natural History, Baross utca 13, H-1088 Budapest, Hungary*
- Prof D.J. PATTERSON *School of Biological Sciences, University of Sydney, N.S.W. 2006, Australia*
- Prof W.D.L. RIDE *Department of Geology, The Australian National University, P.O. Box 4, Canberra, A.C.T. 2600, Australia*
- Dr G. ROSENBERG *Academy of Natural Sciences, 1900 Benjamin Franklin Parkway, Philadelphia, PA 19103-1195, U.S.A.*
- Prof D.X. SONG *College of Life Sciences, Hebei University, Baoding, Hebei Province, 071002 China*
- Dr P. ŠTYS *Department of Zoology, Charles University, Viničná 7, 128 44 Praha 2, Czech Republic*

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The International Code of Zoological Nomenclature

The new and extensively revised 4th Edition of the *International Code of Zoological Nomenclature* (ISBN 0 85301 006 4) was published (in a bilingual volume in English and French) in August 1999. It came into effect on 1 January 2000 and entirely supersedes the 3rd (1985) edition.

The price of the English and French volume of the 4th Edition is £40 or \$65; the following discounts are offered:

Individual members of a scientific society are offered a discount of 25% (price £30 or \$48); the name and address of the society should be given.

Individual members of the American or European Associations for Zoological Nomenclature are offered a discount of 40% (price £24 or \$39).

Postgraduate or undergraduate students are offered a discount of 25% (price £30 or \$48); the name and address of the student's supervisor should be given.

Institutions or agents buying 5 or more copies are offered a 25% discount (price £30 or \$48 for each copy).

Prices include surface postage; for Airmail please add £2 or \$3 per copy.

Copies may be ordered from: ITZN, c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk), or AAZN, Attn. D.G. Smith, MRC-159, National Museum of Natural History, Washington, D.C. 20560-0159, U.S.A. (e-mail: smith.davidg@nsmnh.si.edu).

Payment should accompany orders. Cheques should be made out to 'ITZN' (in sterling or dollars) or to 'AAZN' (in dollars only). Payment to ITZN (but not to AAZN) can also be made by Visa or MasterCard giving the cardholder's number, name and address and the expiry date.

Individual purchasers of the Code are offered a 50% discount on the following publications for personal use:

Towards Stability in the Names of Animals — a History of the International Commission on Zoological Nomenclature 1895–1995 (1995) — reduced from £30 to £15 and from \$50 to \$25;

The Bulletin of Zoological Nomenclature (the Commission's quarterly journal) — discount valid for up to four years; for 2001 the discounted price would be £57 or \$105.

Official texts of the Code in several languages have been authorized by the Commission, and all (including English and French) are equal in authority. German, Japanese, Russian and Spanish texts have now been published and others are planned. Details of price and how to buy the published texts can be obtained from the following e-mail addresses:

German — books@insecta.de

Japanese — tomokuni@kahaku.go.jp

Russian — kim@ik3599.spb.edu

Spanish — mcnb168@mncn.csic.es

Official Lists and Indexes of Names and Works in Zoology — Supplement 1986–2000

The volume entitled *Official Lists and Indexes of Names and Works in Zoology* (ISBN 0 85301 004 8) was published in 1987. It gave details of the names and works on which the Commission had ruled and placed on the Official Lists and Indexes since it was set up in 1895 through to the end of 1985. The volume contained 9917 entries, 9783 being family-group, generic or specific names and 134 relating to works.

In the 15 years between 1986 and the end of 2000 a further 601 Opinions and Directions have been published in the *Bulletin* listing 2371 names and 14 works placed on the Official Lists and Indexes. Details of these 2385 entries are given in a Supplement of 141 pages (ISBN 0 85301 007 2) published early in 2001. Additional sections include (a) a systematic index of names on the Official Lists covering both the 1987 volume and the Supplement; (b) a table correlating the nominal type species of genera listed in the 1987 volume with the valid names of those species when known to be different; and (c) emendments to the 1987 volume.

The cost of the 1987 volume and of the Supplement is £60 or \$110 each, and £100 or \$170 for both volumes ordered together.

Individual buyers of the volumes for their own use are offered a price of £50 or \$85 for each volume, and £90 or \$150 for both.

Individual members of the American or European Association for Zoological Nomenclature are offered a price of £45 or \$70 for each volume, and £80 or \$120 for both.

Prices include postage by surface mail; for Airmail, please add £3 or \$5 for each volume.

Copies may be ordered from: ITZN, c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk), or AAZN, Attn. D.G. Smith, MRC-159, National Museum of Natural History, Washington, D.C. 20560–0159, U.S.A. (e-mail: smith.davidg@nsmnh.si.edu).

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International Committee on Bionomenclature

In 1995 the International Unions of Biological Sciences (IUBS) and Microbiological Sciences (IUMS) established a non-executive International Committee on Bionomenclature to consider issues which affected the several Codes and sets of rules regulating the nomenclature of botanical, microbiological and zoological taxa and of cultivated plants and viruses.

In 1996 the Committee issued a draft '*BioCode*' (see BZN 53: 148–166; September 1996) relating to names for newly described taxa, which included proposals for the registration of new names and harmonisation of terms used in nomenclature. Some of these terms were used in the editions of the Codes of botanical and zoological

nomenclature which were published in 1999, but the principle of registration was not adopted in either of those Codes.

An open meeting of the Bionomenclature Committee was convened at the IUBS General Assembly in Naples in November 2000, and was attended by representatives of the bodies responsible for the botanical, microbiological and zoological Codes (in the last case by the Executive Secretary of the Commission).

It was agreed: (1) that the former *BioCode* project should not be pursued; (2) that further convergence of nomenclatural terms is desirable and should be promoted; (3) that the registration of new names would be very useful, and the relevant bodies should be urged to develop acceptable procedures; (4) that definitive lists of existing names in particular fields should be encouraged; (5) that there was a real need for a new guidebook on taxonomic nomenclature; (6) that a formal '*Phylocode*' was not necessary, and at least for lower-level taxa would cause confusion.

The meeting noted that the nomenclature of 'ambireginal' organisms (at both the botanical/zoological and botanical/bacteriological interfaces) presented problems, and that these could be addressed by an agreed nomenclatural allocation of taxonomic groups to particular Codes (e.g. myxomycetes to Botany). Existing names should not be replaced because of inter-regnal homonymy.

It was agreed that it was important to continue inter-Code contacts and discussions, and that IUBS and IUMS should maintain the joint International Committee on Bionomenclature.

Case 3158***Helix lucorum* Linnaeus, 1758 and *Helix punctata* Müller, 1774 (currently *Otala punctata*; Mollusca, Gastropoda): proposed conservation of usage of the specific names by the replacement of the syntypes of *H. lucorum* with a neotype**

Christian Van Osselaer, Frédéric Chérot & Bernard Tursch

Université Libre de Bruxelles, Laboratoire de Bio-Ecologie, av. F. Roosevelt 50, C.P. 160/14, B-1050 Brussels, Belgium (e-mail for C. Van Osselaer: cvanosse@ulb.ac.be)

Thierry Backeljau

Institut royal des Sciences Naturelles de Belgique, rue Vautier, 29, B-1000 Brussels, Belgium

Abstract. The purpose of this application is to conserve the accustomed understanding and usage of the names for two European pulmonate gastropods, *Helix lucorum* Linnaeus, 1758 and *Otala punctata* (Müller, 1774) (family HELICIDAE). The two existing syntypes of *H. lucorum* are specimens of *O. punctata* and it is proposed that these be set aside and a neotype designated in accord with accepted usage. The species *Helix lucorum* as currently understood is found from Italy eastwards through to the former USSR and has been introduced in France; *O. punctata* is present in the south of France, Spain and the north of Morocco. Both the names *H. lucorum* and *O. punctata* refer to two of the most commercialised terrestrial snails of the food industry.

Keywords. Nomenclature; taxonomy; Gastropoda; Pulmonata; HELICIDAE; *Helix lucorum*; *Otala punctata*; edible snails.

1. Linnaeus (1758, p. 773) described *Helix lucorum* in the 10th edition of the *Systema Naturae* under the species number 605. In the 12th edition (1767, p. 1247), the species description, then numbered 692, was identical. Linnaeus (1758, 1767) cited only one reference, that of the figure by Gualtieri (1742, pl. 1, fig. C); the habitat was given as 'Europa'. Gualtieri's figure and Linnaeus's description could refer to forms of what is widely known as *Helix lucorum*.

2. One syntype of *Helix lucorum*, marked '692' (handwritten), is in the collection of the Linnean Society of London. However, it is clearly not a specimen of a species of *Helix* as now understood but is referable to *Otala punctata* (Müller, 1774, p. 21). Mollusc specimens, when large enough, were marked by Linnaeus with their names or with their numbers corresponding to those in either the 10th or the 12th edition of *Systema Naturae* (see Dodge, 1952). The number marked on the London specimen is not very clear and we have therefore considered other plausible interpretations. However, none of the other numbers which are possible interpretations of the label

could be safely attributed in either the 10th or the 12th edition to another species included in the genus *Helix* in its present use. Since Linnaeus's death in 1778 his shell collection has several times been mishandled and adulterated (notably by Henry Sowerby and S. Hanley) leaving it in an unreliable state (see Dance, 1967). Dance, when he revised the collection in 1963, separated the shell '692' from a batch of mixed specimens and identified it as *H. lucorum* Linnaeus, 1758 (the only label present).

3. Another syntype of *Helix lucorum* is in the collection of the Uppsala University Zoological Museum. Like the London syntype, it is a specimen of *Otala punctata* (Müller, 1774), as noted by Wallin (1994). It seems that this syntype is the sole specimen of *H. lucorum* Linnaeus in Uppsala which remains today (Odhner, 1953, MS and Dr Mats Eriksson, Museum of Evolution, Uppsala, personal communication) although 24 specimens once existed (see Holm, 1957, p. 16).

4. Thus, the two specimens from the Linnean collections are both *Otala punctata*. There is little doubt that they are syntypes of Linnaeus's nominal taxon *H. lucorum*. The short description by Linnaeus (1758, 1767) might fit the syntype specimens, but these match very poorly Gualtieri's (1742) illustration. It may be noted that references given by Linnaeus often contained errors, citing a wrong plate or figure. For many species he also used figures of several related but quite distinct shells (see Dodge, 1953).

5. Müller (1774, p. 46) repeated the descriptions of both Gualtieri (1742) and Linnaeus (1758, 1767), followed by a more detailed description of what he called '*H. lucorum*'. Müller's description is detailed enough to recognise his zoological taxon, which is not that of Linnaeus. Müller wrote that the species came from Italy, where there are no species of *Otala* Schumacher, 1817. Gualtieri's figure is closer to Müller's taxon than to an *Otala* species. Many subsequent authors probably used Müller's work because Linnaeus's description was too vague and this was the source of the subsequent confusion. The first potentially valid name for the species described by Müller (1774) under the name *H. lucorum* is *H. mutata* Lamarck, 1822 (see para. 7 below) but this name has never been adopted for the taxon.

6. Schröter (1784, p. 159) was the first to remark on the discrepancies between the concepts of Linnaeus (1758) and Müller (1774) under the name *Helix lucorum*. Gmelin (1791, p. 3649) repeated Linnaeus's (1758) description of *Helix lucorum*. He also referred to Gualtieri's (1742) and Müller's (1774) accounts of the species but Müller's was quoted with a question mark, expressing doubt. In contrast, Gmelin cited an untitled figure published by Lister (1770, pl. 1058, fig. 1.2) which illustrates a specimen from Portugal, most probably an *Otala* species. It must be noted that Müller's zoological taxon *H. lucorum* is unknown from Portugal, in contrast to *Otala* species, and that Lister illustrated a shell under the name *H. lucorum* on a different plate (pl. 49, fig. 47). After Gmelin (1791) all authors used *H. lucorum* for the species described by Müller (1774), crediting the name to Linnaeus (1758) or to Müller (1774).

7. In 1801 Olivier (p. 13) described *Helix castanea* from Turkey as a new species. This name is a junior primary homonym of *H. castanea* Müller, 1774 (pp. 67–68). Férussac (1821, p. 29) recorded Olivier's nominal taxon as being the same as *Helix lucorum* 'Müller, 1774'. Lamarck (1822, p. 67) established *H. mutata* as a replacement name (nomen novum) for *H. castanea* Olivier, considering the taxon to be distinct from *H. lucorum* sensu Müller.

8. Like the earlier authors mentioned above, Hanley (1855, p. 378) noted the contradiction between Linnaeus's (1758) description of *Helix lucorum* and Gualtieri's (1742) figure. He considered that the London specimen did not correspond to Linnaeus's description and identified it as *Otala lactea* (Müller, 1774), and not *O. punctata* (Müller, 1774) as we do. He concluded that *H. lucorum* 'must be termed, for the future, the *lucorum* of Müller, and not of Linnaeus'. Following Hanley, several authors in the 19th and 20th centuries attributed the name *H. lucorum* to Müller (1774) (see, for example, Wood, 1856, p. 171; Pfeiffer, 1868, p. 234; Rossmässler, 1876, p. 18; Grossu, 1983, p. 519). Zilch (1952) attributed *H. lucorum* to Linnaeus (1758) in the text (p. 154) but to Müller (1774) in the legend of his figure (p. 168). All other authors credited the name *H. lucorum* to Linnaeus (1758).

9. The name *Helix lucorum* as universally used refers to an edible species and one of the most commercialised terrestrial snails. The species is of concern not only to taxonomists but also to the food industry, control agencies and collectors. In recent years the name has been used in the fields of ecology, physiology, biology, behavior and conservation. It has consistently been used in the sense of Müller's (1774) description (i.e. *H. mutata* Lamarck, 1822). Representative publications in which the name has appeared in this sense include Cesari (1978), Schilevko (1978), Lazaridou-Dimitriadou & Daguzan (1980), Richardson (1980), Blanc & Allemand (1993) and Zakharov (1998). A list of 33 selected additional references by 40 authors and dating from 1921 to 1997 which demonstrate the usage of the name *H. lucorum* is held by the Commission Secretariat.

10. Acceptance of the London and Uppsala specimens as syntypes of *Helix lucorum* Linnaeus, 1758 would mean that the name *lucorum* would become a senior subjective synonym of *punctata* and a new name would be required for *lucorum* as long understood. As noted above (para. 7), the first potentially valid name for the latter is *H. mutata* Lamarck, 1822. A transfer of the name *lucorum* to the species currently called *punctata*, and introduction of the unused name *mutata* in place of *lucorum* as universally used, would cause considerable and unnecessary confusion. We therefore propose that the syntypes of *H. lucorum* be set aside and a neotype be designated in accord with accustomed usage. One large and one small specimen, both showing the reflected lip characteristic of adults, in the Zoological Museum of the University of Copenhagen, identified by earlier curators as original Müller material and labelled as 'types', are consistent with Müller's (1774) text under the name *H. lucorum* and universal current usage. One label on the large specimen bears a record 'from M.' which refers to Müller (Dr Tom Schiøtte, ZMUC, personal communication). Two labels on the small specimen bear the locality 'Italia'. Morphometrical measurements have been taken on both specimens and incorporated in the multivariate analysis in our forthcoming paper on this species. We propose that the smaller specimen (length 32.71 mm, diameter 39.96 mm), which is intact, be designated as the neotype of *H. lucorum*. The specimen now has an additional label in its box written by ourselves denoting its (potential) neotype status. This designation will maintain the usages of both *H. lucorum* Linnaeus and *O. punctata* (Müller). Müller (1774, p. 21) described *Helix punctata* from Italy; two specimens in one batch, also in the Zoological Museum of the University of Copenhagen, were labelled as 'types' by an earlier curator.

11. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to set aside all previous type fixations for the nominal species *Helix lucorum* Linnaeus, 1758 and to designate the specimen labelled as the neotype (length 32.71 mm, diameter 39.96 mm) in the Zoological Museum of the University of Copenhagen as the neotype;
- (2) to place on the Official List of Specific Names in Zoology the following names:
 - (a) *lucorum* Linnaeus, 1758, as published in the binomen *Helix lucorum* and as defined by the neotype designated in (1) above;
 - (b) *punctata* Müller, 1774, as published in the binomen *Helix punctata*.

References

- Blanc, A. & Allemand, R.** 1993. L'escargot turc *Helix lucorum* L. (Gasteropoda: Helicidae), espèce acclimatée dans l'agglomération lyonnaise: comparaison du rythme d'activité avec celui de deux espèces voisines autochtones. *Bulletin de la Société Zoologique de France*, **118**(2): 203–209.
- Cesari, P.** 1978. La malacofauna del territorio italiano. 1 Contributo: il genere *Helix*. *Conchiglie*, **14**(3–6): 35–90.
- Dance, S.P.** 1967. Report on the Linnean shell collection. *Proceedings of the Linnean Society of London*, **178**(1): 1–22.
- Dodge, H.** 1952. A historical review of the mollusks of Linnaeus. 1. *Bulletin of the American Museum of Natural History*, **100**: 1–264.
- Férussac, A.E.J. d'A. de.** 1821–1822. *Tableaux systématiques des animaux mollusques . . . suivis d'un prodrome général pour tous les mollusques terrestres ou fluviatiles, vivants ou fossiles*. xiv, 114 pp. Baillière, Paris.
- Gmelin, J.F.** 1791. *Caroli a Linné Systema Naturae*, Ed. 13, vol. 1, part 6 (Vermes). Pp. 3021–3910. Lipsiae.
- Grossu, A.V.** 1983. *Gastropoda Romaniae*. Ordo Stylommatophora 4. 564 pp. Editura Litera, Bucarest.
- Gualtieri, N.** 1742. *Index Testarum Conchyliorum quae adservantur in Museo Nicolai Gualtieri*. xxiii pp., 110 pls. Florentiae.
- Hanley, S.** 1855. *Ipsa Linnaei conchyliæ. The shells of Linnaeus, determined from his manuscripts and collection. . . Also, an exact reprint of the Vermes Testacea of the 'Systema Naturae' and 'Mantissa'*. 556 pp., 1 pl. Williams & Norgate, London.
- Holm, Å.** 1957. Specimina Linnaeana I Uppsala beverage Zoologiska samlingar från Linnés tid. *Uppsala Universitets Arsskrift*, **6**: 1–69.
- Lamarck, J.B.P.A.** 1822. *Histoire naturelle des animaux sans vertèbres*, vol. 6, part 2. 232 pp. Author, Paris.
- Lazaridou-Dimitriadou, M. & Daguzan, J.** 1980. Le marché et l'industrie des escargots en Grèce. *Haliotis*, **10**(1): 59–60.
- Linnaeus, C.** 1758. *Systema Naturae*, Ed. 10. 824 pp. Salvii, Holmiae.
- Linnaeus, C.** 1767. *Systema Naturae*, Ed. 12, vol. 1, part 2. Pp. 1069–1327. Salvii, Holmiae.
- Lister, M.** 1770. *Historiae sive synopsis methodicae conchyliorum et tabularum anatomicarum*. 434 pp. Oxonii.
- Müller, O.** 1774. *Vermium terrestrium et fluviatilium, seu Animalium infusoriorum, Helminthicorum et Testaceorum, non marinorum, succincta historia*, vol. 2. xxxv, 214 pp. Heineck & Faber, Havniae & Lipsiae.
- Odhner, N.H.** 1953. *Identifications of Linnean shells in Museum Ludovicae Ulricaë*. Mimeographed.
- Olivier, A.G.** 1801. *Voyage dans l'Empire Othoman, l'Égypte et la Perse . . . pendant les six premières années de la république*, vol. 2. 373 pp. Paris.

- Pfeiffer, L.** 1868. *Monographia Heliceorum viventium. Sistens descriptiones systematicas et criticas omnium huius familiae generum et specierum hodie cognitatarum*, vol. 5. xii, 565 pp. Brockhaus, Lipsiae.
- Richardson, L.** 1980. Miscellaneous publications of the department of Malacology of the Academy of Natural Sciences of Philadelphia, no. 3, part 1 (Helicidae: catalog of species). *Tryona*, **3**: 1–697.
- Rossmässler, E.A.** 1876. *Iconographie der Land- und Süßwasser-Mollusken mit vorzüglicher Berücksichtigung der Europäischen noch nicht abgebildeten arten*, vol. 4. 74 pp., pls. 91–120. Kreidel, Wiesbaden.
- Schileyko, A.A.** 1978. Nazemnye Molljuskij Nadsemejstva Helicoidea. Fauna SSSR, Molljuskij, vol. 3, part 6 (Helicoidea). *Zoologicheskij Institut, Akademija Nauk SSSR*, (N.S.) **117**: 1–360.
- Schröter, J.S.** 1784. *Einleitung in die Conchylienkenntniss nach Linné*, vol. 2. viii, 726 pp., pls. 4–7. Gebauer, Halle.
- Wallin, L.** 1994. *Catalogue of type specimens. 4. Linnaean specimens*. 128 pp. Uppsala University Zoological Museum, Uppsala.
- Wood, W.** 1856. *Index testaceologicus; or a catalogue of shells, British and foreign, containing about 2800 figures accurately coloured after nature*. 234 pp., 46 pls. Willis & Sotheran, London.
- Zakharov, I.S.** 1998. Postembryonic neuronogenesis in the procerubrum of the terrestrial snail, *Helix lucorum* L. *Journal of Neurobiology*, **35**(3): 271–276.
- Zilch, A.** 1952. Die typen und typoide des Natur-museums Senckenberg, 6 (Mollusca), Helicinae (2). *Archiv für Molluskenkunde*, **81**(4/6): 135–173.

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).

Case 3175***Ampullaria canaliculata* Lamarck, 1822 (currently *Pomacea canaliculata*; Mollusca, Gastropoda): proposed conservation of the specific name**

Robert H. Cowie (e-mail: rhcowie@bishopmuseum.org)

Bishop Museum, 1525 Bernice Street, Honolulu, Hawaii 96817–2704, U.S.A.

Alan R. Kabat

c/o Department of Invertebrate Zoology, National Museum of Natural History, Smithsonian Institution, Washington, D.C. 20560–0118, U.S.A.

Neal L. Evenhuis (address as for Dr R.H. Cowie)

Abstract. The purpose of this application is to conserve the well known and used specific name of *Ampullaria canaliculata* Lamarck, 1822 (currently known as *Pomacea canaliculata*, family AMPULLARIIDAE) for a species of freshwater gastropod. The name has been used for the taxon for nearly 180 years but is a junior primary homonym of *Ampullaria canaliculata* Lamarck, 1804 (currently known as *Natica* or *Amauropsina canaliculata*, family NATICIDAE or AMPULLOSPIRIDAE), the name for an Eocene marine species from Europe. The species have not been considered congeneric since 1832. *Pomacea canaliculata* (Lamarck, 1822) is a major pest species of rice and taro, originally from South America but spreading in North America and introduced in south-east Asia and islands in the Pacific.

Keywords. Nomenclature; taxonomy; *Natica canaliculata*; *Amauropsina canaliculata*; *Pomacea canaliculata*; Gastropoda; NATICIDAE; AMPULLOSPIRIDAE; AMPULLARIIDAE; Eocene; Recent; apple snails; pest species.

1. Lamarck (1804, p. 32) described a new gastropod species, *Ampullaria canaliculata*, as a fossil shell from Grignon in the environs of Paris, France. His description was based on shells from his own collection (now in Geneva) and the collection of Defrance (formerly in the Musée d'Histoire Naturelle de Caen); the Defrance specimens are now missing (see Bigot, 1907, p. 87). There are six syntypes of this species from the Lutetien (middle Eocene) marine deposits at Grignon, in the Département de Géologie et de Paléontologie at the Muséum d'Histoire Naturelle, Genève (MHNG) (Decrouez, 1993, p. 318).

2. Subsequently, Lamarck (1822a, p. 178) introduced *Ampullaria canaliculata* for a Recent species from 'La Guadeloupe'. This Caribbean island type locality may be in error (Hylton Scott, 1958; Thiengo, Borda & Araújo, 1993) as the species appears to be endemic from temperate Argentina northwards to Brazil and does not occur naturally in Guadeloupe or elsewhere in the Caribbean (see, for example, Pointier, 1975). The presumed type specimen of this species is also in the MHNG (Département des Invertébrés) and was discussed and figured by Mermod (1952, pp. 88–89, fig. 149); it is a freshwater ampullariid.

3. Lamarck (1822b, p. 180) noted that many of the species he described in Lamarck (1822a) belonged to the same genus as the fossil species he had previously described from Grignon in his 1804 work, although he did not explicitly state whether the two descriptions of *canaliculata* referred to a single species. If he had considered them to be the same species the 1822 name represents a misidentification. Because Lamarck (1822a) did not explicitly state that the two descriptions referred to the same species, it seems parsimonious to conclude that he inadvertently described two species with the same name. Additional support for this interpretation comes from Lamarck himself (1822b, p. 549). In this work he introduced the name *Ampullaria canalifera* with a condensed version of the 1804 description of *canaliculata* and listed *canaliculata* Lamarck, 1804 as a synonym. The 1822 work treated the same 12 fossil species of *Ampullaria* as did the 1804 work, and in the same sequence, the only difference in the names being that *canaliculata* in the 1804 work was replaced with *canalifera* in the 1822 work. It seems likely that Lamarck had noticed the homonymy and replaced *canaliculata* 1804 with *canalifera*. His reason for replacing the senior synonym rather than the junior remains unknown. Deshayes & Milne Edwards (1838, p. 534) restated the description of *Ampullaria canaliculata* Lamarck, 1822 and (p. 552) listed *canaliculata* Lamarck, 1804 as a synonym of *Ampullaria canalifera* Lamarck, 1822, stating that it was a fossil from France. Kabat (1991, p. 419) outlined the history of confusion by Lamarck and others of fossil naticoids (marine taxa) with the freshwater ampullariids.

4. Deshayes (1832, p. 170) subsequently transferred *Ampullaria canaliculata* Lamarck, 1804 to *Natica Scopoli*, 1777, a genus in the family NATICIDAE. Many of Lamarck's fossil naticoids are the type species of various genera. *Ampullaria canaliculata* Lamarck, 1804 is the type species of *Amauropsina* Chelot, 1885 (p. 203) by original designation (see Kabat, 1991, p. 426). *Amauropsina* has been classified in the NATICIDAE by most authors, but was recently transferred, without explanation, to the AMPULLOSPIRIDAE by Tracey et al. (1996, p. 116). Although never frequently cited in the literature, *canaliculata* Lamarck, 1804 does appear particularly in the classical works dealing with the deposits in which it occurs, as well as in type catalogues, generic compilations and stratigraphic checklists. A syntype of *canaliculata* Lamarck, 1804 was figured by Favre (1918, pl. 4, figs. 50–53) in his type catalogue of the Lamarckian fossils, and Palmer (1977, p. 170) reproduced Lamarck's hitherto unpublished figure of the species. The remaining citations to *canaliculata* Lamarck, 1804 since 1900, as known to us, are Cossmann (1902, p. 16), Cossmann & Pissarro (1902, p. 87, pl. 21, fig. 34), Cossmann & Peyrot (1919, pp. 188–189, fig. 52), Cossmann (1925, pp. 124–125, pl. 3, figs. 3–4), Glibert (1933, pp. 33–34, pl. 2, fig. 3), Wenz (1941, p. 1036, fig. 2968), Glibert (1963, pp. 93–94), Berset & Decrouez (1990, p. 227), Le Renard & Pacaud (1995, p. 95), Pacaud & Le Renard (1995, p. 164) and Tracey et al. (1996, p. 116).

5. The specific name of *Ampullaria canaliculata* Lamarck, 1822 has a considerable record of usage in both the classical and modern literature and in both the taxonomic and non-taxonomic literature. Originally a South American species, it has been introduced to South-east Asia where during the past two decades it has become a major pest of rice (Cowie, in press). It has also been introduced to islands of the Pacific, where it has become a serious pest of taro (Cowie, 1995, 2000). It has been reported from continental U.S.A. in Texas (Neck, 1987), Florida (Thompson, 1997)

and California (Cerutti, 1998), and it is considered a major threat to Australian rice-growing and wetland areas as well as to as yet uninfested regions of southern Asia (Baker, 1998). An immense literature, both in widely accessible peer-reviewed scientific journals and books and in the more obscure literature of agency reports, newsletters, conference proceedings and other publications has proliferated, particularly in the last 20 years. The following list of publications constitutes a representative sample, reflecting in part the rapid spread and increased economic significance of this species as a major crop pest since about 1980: Mochida, 1988; Berthold, 1991; Halwart, 1994; Estebenet, 1995; Albrecht, Carreño & Castro-Vazquez, 1996; Naylor, 1996; Perera & Walls, 1996; Vitousek, D'Antonio, Loope & Westbrooks, 1996; Wada, 1997; and Lach, Britton, Rundell & Cowie, in press. In addition to the works cited in this application, 17 further references by 36 authors and dating from 1965 to 1999 which demonstrate the usage of the name *canaliculata* Lamarck, 1822 are held by the Commission Secretariat. Numerous earlier books and major taxonomic treatments also deal with *canaliculata* Lamarck, 1822 (see, for example, Philippi, 1851; Reeve, 1856–1858; Sowerby, 1909; Kobelt, 1913; Alderson, 1925).

6. The homonymy between *Ampullaria canaliculata* Lamarck, 1804 and *A. canaliculata* Lamarck, 1822 could be resolved by replacing the junior homonym with a name from among its synonymies. However, the taxonomy of the group of species to which *Pomacea canaliculata* (Lamarck, 1822) belongs is currently unresolved (Cowie, in press) and requires extensive research. Many names have been suggested by various authors as junior synonyms of *canaliculata* Lamarck, 1822, the earliest of which seem to be *A. lineata* Spix, 1827, *A. australis* d'Orbigny, 1835 and *A. insularum* d'Orbigny, 1835 (see, for example, Hylton Scott, 1958; Thiengo et al., 1993). However, these names have been used by other authors as names for valid taxa. Among the few major revisions of this species group, the most recent being that of Alderson (1925), there are none that would permit the definitive selection of a junior synonym as a substitute name. Further, given the immense literature dealing with this species (see para. 5 above), great and unnecessary confusion would be generated.

7. Alternatively, the homonymy could be removed by suppressing the older name, *canaliculata* Lamarck, 1804, and replacing it with a name from its synonymy. The oldest synonym that can be applied is *canalifera* Lamarck, 1822 (para. 3 above). The only use of this name in the 20th century known to us is in the type catalogue by Decrouez (1993). Both the generic and specific names of *Amauropsina canaliculata* have been cited in the literature since Chelot's (1885) description of *Amauropsina* and his selection of *canaliculata* as the type species.

8. As noted above, the specific name of *Ampullaria canaliculata* Lamarck, 1822 is a junior primary homonym of *A. canaliculata* Lamarck, 1804. However, the species have not been included in the same genus since 1832 when Deshayes transferred the latter to *Natica* Scopoli, 1777, and neither is now included in the original genus. *Ampullaria canaliculata* Lamarck, 1804 is now placed in *Natica* or in *Amauropsina* Chelot, 1885 and, following Opinion 1913 (March 1999), the valid genus for *A. canaliculata* Lamarck, 1822 is *Pomacea* Perry, 1810. Indeed, the two species are currently included in different families: *canaliculata* (1804) in the NATICIDAE or AMPULLOSPIRIDAE and *canaliculata* (1822) in the AMPULLARIIDAE. To avoid the confusion that would result from upsetting the long-established usage of either name, and in the interests of nomenclatural stability, we propose that both names be

maintained. We also propose that the specific name of *A. canalifera* Lamarck, 1822 be placed on the Official Index as an unused junior objective synonym (replacement name) of *A. canaliculata* Lamarck, 1804.

9. Article 23.9.5 of the Code records that 'When an author discovers that a species-group name in use is a junior primary homonym of another species-group name also in use, but the names apply to taxa not considered congeneric after 1899, the author must not automatically replace the junior homonym; the case should be referred to the Commission for a ruling under the plenary power and meanwhile prevailing usage of both names is to be maintained'.

10. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to rule that the specific name *canaliculata* Lamarck, 1822, as published in the binomen *Ampullaria canaliculata*, is not invalid by reason of being a junior primary homonym of *Ampullaria canaliculata* Lamarck, 1804;
- (2) to place on the Official List of Generic Names in Zoology the name *Amauropsina* Chelot, 1885 (gender: feminine), type species by original designation *Ampullaria canaliculata* Lamarck, 1804;
- (3) to place on the Official List of Specific Names in Zoology the following names:
 - (a) *canaliculata* Lamarck, 1804, as published in the binomen *Ampullaria canaliculata* (specific name of the type species of *Amauropsina* Chelot, 1885);
 - (b) *canaliculata* Lamarck, 1822, as published in the binomen *Ampullaria canaliculata* (not invalid by the ruling in (1) above);
- (4) to place on the Official Index of Rejected and Invalid Specific Names in Zoology the name *canalifera* Lamarck, 1822, as published in the binomen *Ampullaria canalifera* (a junior objective synonym of *Ampullaria canaliculata* Lamarck, 1804).

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References

- Albrecht, E.A., Carreño, N.B. & Castro-Vazquez, A.** 1996. A quantitative study of copulation and spawning in the South American apple-snail, *Pomacea canaliculata* (Prosobranchia: Ampullariidae). *The Veliger*, **39**: 142–147.
- Alderson, E.G.** 1925. *Studies in Ampullaria*. xx, 102 pp., 19 pls. Heffer, Cambridge.
- Baker, G.H.** 1998. The golden apple snail, *Pomacea canaliculata* (Lamarck) (Mollusca: Ampullariidae), a potential invader of fresh water habitats in Australia. Pp. 21–26, in Zalucki, M.P., Drew, R.A.I. & White, G.G. (Eds.), *Pest management — future challenges. Proceedings of the sixth Australasian applied entomological research conference. Brisbane, Australia. 29 September–2 October 1998*, vol. 2. University of Queensland Printery, Brisbane.
- Berset, S. & Decrouez, D.** 1990. Les collections du département de géologie et de paléontologie des invertébrés du muséum d'histoire naturelle de Genève — 38. La collection Delessert. *Revue de Paléobiologie*, **9**(1): 215–242.

- Berthold, T.** 1991. Vergleichende Anatomie, Phylogenie und historische Biogeographie der Ampullariidae (Mollusca, Gastropoda). *Abhandlungen des Naturwissenschaftlichen Vereins in Hamburg (NF)*, **29**: 1–256.
- Bigot, A.** 1907. Catalogue critique de la collection Defrance, conservée au Musée d'Histoire Naturelle de Caen. Quatrième partie: Gastéropodes décrits et figurés par Lamarck d'après des échantillons de cette collection. *Bulletin de la Société Linnéenne de Normandie*, (5)**10**: 81–135.
- Cerutti, R.** 1998. An infestation of *Pomacea canaliculata* (Lamarck, 1804) in Lake Miramar, San Diego, California. *The Festivus*, **30**(2): 25–27, 29.
- Chelot, E.** 1885. Rectifications pour servir à l'étude de la faune éocène du bassin de Paris. *Bulletin de la Société Géologique de France*, (3)**13**(2): 191–203.
- Cossmann, M.** 1902. Mollusques éocéniques de la Loire-Inférieure, tome 2(2). *Bulletin de la Société des Sciences Naturelles de l'Ouest de la France*, (2)**2**(1): 5–159.
- Cossmann, M.** 1925. *Essais de paléoconchologie comparée*, vol. 13. 345 pp., 11 pls.
- Cossmann, M. & Peyrot, A.** 1919. Conchologie néogénique de l'Aquitaine. *Actes de la Société Linnéenne de Bordeaux*, **70**: 181–356.
- Cossmann, M. & Pissarro, G.** 1902. Faune éocénique du Cotentin (mollusques), 3e Article (1). *Bulletin de la Société Géologique de Normandie*, **21**: 27–181.
- Cowie, R.H.** 1995. Identity, distribution and impacts of introduced Ampullariidae and Viviparidae in the Hawaiian Islands. *Journal of Medical and Applied Malacology*, **5**: 61–67.
- Cowie, R.H.** 1997. Catalog and bibliography of the non-indigenous nonmarine snails and slugs of the Hawaiian Islands. *Bishop Museum Occasional Papers*, **50**: 1–66.
- Cowie, R.H.** 2000. *Non-indigenous land and freshwater molluscs in the islands of the Pacific: conservation impacts and threats*. South Pacific Regional Environment Programme Technical Report. Apia, Samoa.
- Cowie, R.H.** In press. Apple snails as agricultural pests: their biology, impacts and management. In Baker, G.M. (Ed.), *Molluscs as crop pests*. CAB International, Wallingford.
- Decrouez, D.** 1993. Les collections du Département de géologie et de paléontologie du Muséum d'Histoire Naturelle de Genève — 47. La collection Lamarck. *Revue de Paléobiologie*, **12**(1): 311–323.
- Deshayes, G.P.** 1824–1837. *Description des coquilles fossiles des environs de Paris*. 2 volumes. Author, Paris.
- Deshayes, G.P. & Milne-Edwards, H.** 1838. *Histoire naturelle des animaux sans vertèbres*, Ed. 2, vol. 8 (Mollusques). 660 pp. Baillière, Paris.
- Estebenet, A.L.** 1995. Food and feeding in *Pomacea canaliculata* (Gastropoda: Ampullariidae). *The Veliger*, **38**: 277–283.
- Favre, J.** 1918. *Catalogue illustré de la collection Lamarck appartenant au muséum d'histoire naturelle de Genève*. 10, 12, 20 pp., 117 pls. Muséum d'Histoire Naturelle, Genève.
- Glibert, M.** 1933. Monographie de la faune malacologique du Bruxellien des environs de Bruxelles. *Mémoires du musée Royal d'histoire naturelle de Belgique. Verhandelingen van het Koninklijk Natuurhistorisch Museum van België*, **53**: 1–216.
- Glibert, M.** 1963. Les Mesogastropoda fossiles du cénozoïque étranger des collections de l'institut royal des sciences naturelles de Belgique, deuxième partie, Fossaridae à Ficidae (inclus). *Koninklijk Belgisch Instituut voor Natuurwetenschappen, Verhandelingen*, (2)**73**: 1–154.
- Halwart, M.** 1994. The golden apple snail *Pomacea canaliculata* in Asian rice farming systems: present impact and future threat. *International Journal of Pest Management*, **40**: 199–206.
- Hylton Scott, M.I.** 1958. Estudio morfológico y taxonomico de los ampullaridos de la Republica Argentina. *Revista del Museo Argentino de Ciencias Naturales 'Bernardino Rivadavia' e Instituto Nacional de Investigacion de las Ciencias Naturales, Ciencias Zoológicas*, **3**(5): 231–333.
- Kabat, A.R.** 1991. The classification of the Naticidae (Mollusca: Gastropoda): review and analysis of the supraspecific taxa. *Bulletin of the Museum of Comparative Zoology*, **152**: 417–449.
- Kobelt, W.** 1913. Die Gattung *Ampullaria*. In Küster, H.C., *Systematisches Conchylien-Cabinet von Martini und Chemnitz*. Neue Folge. 1(20) (Section 2), pp. 153–200, pls. 57–68. Baur & Raspe, Nürnberg.

- Lach, L., Britton, D.K., Rundell, R.J. & Cowie, R.H.** In press. Food preference and reproductive plasticity in an invasive freshwater snail. *Biological Invasions* (2001).
- Lamarck, J.B.P.A. de M. de.** 1804. Suite des mémoires sur les fossiles des environs de Paris. *Annales du Muséum National d'Histoire Naturelle*, **5**(25): 28–36.
- Lamarck, J.B.P.A. de M. de.** 1822a, 1822b. *Histoire naturelle des animaux sans vertèbres*, vol. 6, part 2. 232 pp. (1822a); vol. 7. 711 pp. (1822b). Author, Paris.
- Le Renard, J. & Pacaud, J.-M.** 1995. Révision des mollusques paléogènes du bassin de Paris. II — Liste des références primaires des espèces. *Cossmanniana*, **3**(3): 65–132.
- Mermod, G.** 1952. Les types de la collection Lamarck au Muséum de Genève. Mollusques vivants, 3. *Revue Suisse de Zoologie*, **59**(2): 23–97.
- Mochida, O.** 1988. The rice water weevil (*Lissorhoptus oryzophilus* Kuschel) and the freshwater snail (*Pomacea canaliculata* (Lamarck)) as important pests of crops for plant quarantine in Asia. *Asean Planti*, **1988**: 71–80.
- Naylor, R.** 1996. Invasions in agriculture: assessing the cost of the golden apple snail in Asia. *Ambio*, **25**: 443–448.
- Neck, R.W.** 1987. A second record of an introduced apple snail, *Pomacea canaliculata*, from the lower Rio Grande valley of Texas. *Texas Conchologist*, **23**(2): 54–57.
- Pacaud, J.-M. & Le Renard, J.** 1995. Révision des mollusques Paléogènes du Bassin de Paris. IV — Liste Systématique Actualisée. *Cossmanniana*, **3**(4): 151–187.
- Palmer, K. van W.** 1977. *The unpublished velins of Lamarck. 1802–1809: Illustrations of the Paris Basin Eocene*. 67 pp., 28 pls. Paleontological Research Institute, Ithaca.
- Perera, G. & Walls, J.G.** 1996. *Apple snails in the aquarium*. 121 pp. T.F.H. Publications, Neptune City, New Jersey.
- Philippi, R.A.** 1851–1852. Die Gattung *Ampullaria*. In Küster, H.C., *Systematisches Conchylien-Cabinet von Martini und Chemnitz*. Neue Folge. 1(20). 74 pp., pls. A, 1–21. Baur & Raspe, Nürnberg.
- Pointier, J.-P.** 1975. Faune malacologique dulçaquicole de l'île de la Guadeloupe (Antilles françaises). *Bulletin du Muséum National d'Histoire Naturelle*, (3)**235** (Zoologie 159): 905–934.
- Reeve, L.** 1856–1858. *Conchologia Iconica: or, illustrations of the shells of molluscous animals*, vol. 10 (Monographs of the genera *Ampullaria* et al.). Reeve, London.
- Sowerby, G.B.** [3rd of the name] 1909. Notes on the family Ampullariidae, with list of species, varieties, and synonyms, also descriptions of four new species. *Proceedings of the Malacological Society of London*, **8**: 345–362.
- Thiengo, S.C., Borda, C.E. & Araújo, J.L.B.** 1993. On *Pomacea canaliculata* (Lamarck, 1822) (Mollusca; Pilidae: Ampullariidae). *Memorias do Instituto Oswaldo Cruz, Rio de Janeiro*, **88**(1): 67–71.
- Thompson, F.G.** 1997. *Pomacea canaliculata* (Lamarck, 1822) (Gastropoda, Prosobranchia, Pilidae): a freshwater snail introduced to Florida, U.S.A. *Malacological Review*, **30**: 91.
- Tracey, S., Todd, J.A., Le Renard, J., King, C. & Goodchild, M.** 1996. Distribution of Mollusca in units S1 to S9 of the Selsey Formation (middle Lutetian), Selsey Peninsula, West Sussex. *Tertiary Research*, **16**(1–4): 97–139.
- Vitousek, P.M., D'Antonio, C.M., Loope, L.L. & Westbrooks, R.** 1996. Biological invasions as global environmental change. *American Scientist*, **84**: 468–478.
- Wada, T.** 1997. Introduction of the apple snail *Pomacea canaliculata* and its impact on rice agriculture. Pp. 170–180, in: *Proceedings, international workshop on biological invasions of ecosystems by pests and beneficial organisms*. National Institute of Agro-Environmental Sciences, Ministry of Agriculture, Forestry and Fisheries, Tsukuba.
- Wenz, W.** 1941. Gastropoda, Teil 1 (Allgemeiner Teil und Prosobranchia), in Schindewolf, O.H. (Ed.), *Handbuch der Paläozoologie*, Band 6. Teil 5. Borntraeger, Berlin.

Case 3132***Eudorylas* Aczél, 1940 (Insecta, Diptera): proposed conservation of usage by the designation of *Pipunculus fuscipes* Zetterstedt, 1844 as the type species**

Marc De Meyer

*Koninklijk Museum voor Midden Afrika, Leuvensesteenweg 13,
3080 Tervuren, Belgium (e-mail: demeyer@africamuseum.be)*

Jeff Skevington

*Department of Zoology and Entomology, University of Queensland, Brisbane,
Queensland 4072, Australia. Present address: Diptera Unit, Systematic
Entomology Section, ECORC, Agriculture and Agri-Food Canada, Ottawa,
Ontario K1A 0C6, Canada (e-mail: skevingtonj@em.agr.ca)*

Abstract. The purpose of this application is to conserve the use of the name *Eudorylas* Aczél, 1940 for a large and cosmopolitan genus of pipunculid flies, parasites of Homoptera, by designating *Pipunculus fuscipes* Zetterstedt, 1844 as the type species. The originally designated type species is *Cephalops opacus* Fallén, 1816, but this was based on an error. *C. opacus* does not correspond to the original and subsequent usage of *Eudorylas* but is included in *Microcephalops* De Meyer, 1989. *Neodorylas* Kuznetsov, 1995 was proposed as a substitute name for *Eudorylas* auct., but it has not been adopted and if it were there would be considerable confusion, since the name *Eudorylas* would be transferred to the species placed in *Microcephalops*. The present proposals conserve the usage of both *Eudorylas* and *Microcephalops*; *Neodorylas* will become a junior objective synonym of *Eudorylas*.

Keywords. Nomenclature; taxonomy; Diptera; PIPUNCULIDAE; *Eudorylas*; *Eudorylas fuscipes*; *Microcephalops*; *Microcephalops opacus*; *Neodorylas*.

1. Fallén (1816, p. 15) described the pipunculid fly *Cephalops opacus* based on male and female specimens from Ostrogothia, Sweden, apparently collected by Zetterstedt ('Habitat in Ostrogothia. D. Zetterstedt.').

2. Subsequent authors (e.g. Becker, 1897, p. 35; Sack, 1935, p. 26) placed *C. opacus* in a species-group of *Pipunculus* Latreille, 1802 recognised by a coloured pterostigma, dull pollinosity of abdomen, and usually an acuminate third antennal segment.

3. Aczél (1940, p. 151) established (in a key) the generic name *Eudorylas* for this species-group of *Pipunculus*. The genus keys out with the following characters [in translation]: 'Propleuron naked, without hairs or bristles. Anal vein present and well developed up to, or almost up to, the hind wing margin. Pterostigma present. Medial vein without furcation and without appendix. Third antennal segment larger than second segment, usually acuminate'. The absence of a propleural fan is considered a

diagnostic character, but this was not noticed by previous entomologists studying the group. Aczél (1940) designated *Cephalops opacus* Fallén, 1816 as the type species of *Eudorylas*, but in doing so he merely selected the included nominal species with the oldest available name and did not examine any type specimens of it.

4. Subsequently Aczél (1948, p. 77) wrote [in translation]: 'Specimens of 31 species with dull abdomen and coloured pterostigma, which were placed in Becker's and Cresson's Group I [of *Pipunculus*] and in Sack's Group IV, have propleura without a fan. It is therefore most likely that all species with dull abdomen and coloured pterostigma of the genus *Dorilas* Meig. s. lat., which I could not study, also belong here. These species are indicated as '*Eudor.*?' in the Index'. Although in the Index (p. 164) *C. opacus* was not given with a question mark it was recorded as '*Eudor.*?' on p. 15 of the text, confirming that Aczél had not studied specimens of this species and that in 1948 he was not sure that it really belonged to *Eudorylas*.

5. Collin (1956) studied Fallén's collection in Stockholm as well as Zetterstedt's in Lund. No specimens (only two empty pins) remain under *C. opacus* in Fallén's collection (Collin, 1956, p. 149). In Zetterstedt's collection two specimens, a male and a female, are labelled as *Pipunculus opacus*, and Collin (1956, p. 151) designated the male specimen (no. 193; type number ZML 2449:1 assigned by R. Danielsson) as the lectotype of *Cephalops opacus* Fallén, 1816.

6. The genus *Eudorylas* as described by Aczél (1940, 1948) has been in common use, and 411 species are currently placed in it (see De Meyer, 1996, 1997; Dempewolf, 1996; Dempewolf & von der Dunk, 1996; Rafael, 1996; Rafael & Ale-Rocha, 1997).

7. Kuznetsov (1995) studied the lectotype of *C. opacus* in Lund and concluded that it is conspecific with *Pipunculus vestitus* Becker, 1900 (p. 230), of which he studied some of the syntypes. *P. vestitus* is a species included in *Microcephalops* De Meyer, 1989 (p. 120), which has *P. banksi* Aczél, 1940 (p. 152) as its type species. *Microcephalops* is differentiated from *Eudorylas* by the propleural fan being present but reduced, the frons broadened and face narrowed, and the third antennal segment being rounded or short acute and only slightly larger than the second segment. In the phylogeny proposed by Rafael & De Meyer (1992) *Microcephalops* and *Collinias* Aczél, 1940 are considered to form a monophyletic group which is distinct from *Eudorylas*. Based on the synonymy of *Cephalops opacus* and *P. vestitus*, Kuznetsov (1995) synonymised *Eudorylas* and *Microcephalops*, treating the former as the valid name. He (Kuznetsov, 1995, p. 326) established the new genus *Neodorylas* to accommodate all the species previously placed in the traditional genus concept of *Eudorylas*, and designated *Pipunculus fuscipes* Zetterstedt, 1844 as the type species. He proposed new generic combinations (with *Neodorylas*) for all 397 species previously placed in *Eudorylas* and (with *Eudorylas*) for the 28 species placed in *Microcephalops*.

8. A restudy of the lectotype of *C. opacus* and syntypes of *P. vestitus* confirms that the names are synonymous, and there can be no doubt that the species concept proposed by Fallén (1816) for *C. opacus* conforms to the lectotype. Although the original description is brief, it states (Fallén, 1816, p. 15) '... at nervus quartus juxta nervum transversum ordinarium haud ita inflectitur, nullum formans angulum'. Freely translated, this means that the fourth longitudinal vein [M1+2] is not curved where it coincides with the marginal cross-vein. This character is seen in the lectotype

of *C. opacus* and in all *Microcephalops* species (cf. illustration 26 in De Meyer, 1989). All other generic characters for *Microcephalops*, including the presence of the reduced propleural fan, are similarly present in the lectotype of *C. opacus*.

9. A review of the recent literature (i.e. after 1995) shows that the proposal of Kuznetsov (1995) has not been adopted by other authors. No reference could be found where the name *Neodorylas* was used. All recent works still use the generic name *Eudorylas* in the sense originally described by Aczél (e.g. Bankowska, 1996, 1997; Dempewolf, 1996, 1998; Dempewolf & von der Dunk, 1996; Rafael, 1996; De Meyer, 1997; Guglielmino & Virla, 1997; Kozánek & Belcari, 1997; Lauterer, 1997; Rafael & Ale-Rocha, 1997; Skevington & Marshall, 1997; von der Dunk, 1997; Dempewolf & Sander, 1999).

10. Von der Dunk & Lauterer (1998, p. 169) considered *C. opacus* and *P. vestitus* to be identical, although they did not examine type material, and placed *C. opacus* in a new combination as *Microcephalops opacus* (Fallén, 1816). However, they did not synonymise the genera *Eudorylas* and *Microcephalops*, and it is evident that they were not aware that *C. opacus* is the type species of *Eudorylas* by original designation.

11. From the above it is clear that Aczél's (1940) designation of *C. opacus* Fallén, 1816 as type species for his genus *Eudorylas* was erroneous, since in doing so he designated a nominal species that does not possess the characters assigned to the generic concept (i.e. the type species was based on a misidentification, or at least in ignorance of its characteristics). Under Article 70b of the 1985 edition of the Code, Kuznetsov (1995) should not have erected the new genus *Neodorylas* to accommodate all species previously placed under *Eudorylas* but should have maintained existing usage and referred the case to the Commission; his action upset the well established usage of the generic name *Eudorylas*.

12. We propose that *Pipunculus fuscipes* Zetterstedt, 1844 (p. 953) should be designated as the type species of *Eudorylas* Aczél, 1940. We have studied the male lectotype designated by Collin (1956, p. 151) in Zetterstedt's collection in Lund (no. 296, type number ZML 2442:1 allocated by R. Danielsson) and found it to conform to the generally accepted concept of *Eudorylas*; from Aczél (1948) it is apparent that *P. fuscipes* is one of the originally included species that he had actually studied. This type species designation would conserve the original and modern usage of the generic name *Eudorylas*, would conserve the name *Microcephalops*, and would render *Neodorylas* Kuznetsov, 1995 a junior objective synonym of *Eudorylas*. The valid name of *Cephalops opacus* Fallén, 1816 would be *Microcephalops opacus*, as used by von der Dunk & Lauterer (1998; see para. 10 above).

13. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to set aside all previous fixations of type species for the nominal genus *Eudorylas* Aczél, 1940 and to designate *Pipunculus fuscipes* Zetterstedt, 1844 as the type species;
- (2) to place on the Official List of Generic Names in Zoology the name *Eudorylas* Aczél, 1940 (gender: masculine), type species by designation in (1) above *Pipunculus fuscipes* Zetterstedt, 1844;
- (3) to place on the Official List of Specific Names in Zoology the name *fuscipes* Zetterstedt, 1844, as published in the binomen *Pipunculus fuscipes* (specific name of the type species of *Eudorylas* Aczél, 1940);

- (4) to place on the Official Index of Rejected and Invalid Generic Names in Zoology the name *Neodorylas* Kuznetzov, 1995 (a junior objective synonym of *Eudorylas* Aczél, 1940).

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References

- Aczél, M.L. 1940. Vorarbeiten zu einer Monographie der Dorylaiden (Dipt.). Dorylaiden-Studien V. *Zoologischer Anzeiger*, **132**: 149–169.
- Aczél, M.L. 1948. Grundlagen einer Monographie der Dorilaiden (Diptera). Dorilaiden-Studien VI. *Acta Zoologica Lilloana*, **6**: 5–168.
- Bankowska, R. 1996. Pipunculidae (Diptera) Kampinoskiego Prku Narodowego. *Fragmenta Faunistica*, **39**: 161–167.
- Bankowska, R. 1997. Pipunculidae (Diptera) of Puszcza Bialowieska. *Fragmenta Faunistica*, **40**: 191–198.
- Becker, T. 1897. Dipterologische Studien V. Pipunculidae. *Berliner Entomologische Zeitschrift*, **42**: 25–100.
- Becker, T. 1900. Dipterologische Studien V [cont.]. Pipunculidae. *Berliner Entomologische Zeitschrift*, **45**: 215–252.
- Collin, J.E. 1956. Scandinavian Pipunculidae. 1. On the species of *Pipunculus* in the collection of Fallén at Stockholm, and Zetterstedt and others at Lund. *Opuscula Entomologica*, **21**(2–3): 149–169.
- De Meyer, M. 1989. Systematics of the Nearctic species of the genus *Cephalops* Fallén (Diptera, Pipunculidae). *Bulletin de l'Institut Royal des Sciences Naturelles de Belgique (Entomologie)*, **59**: 99–130.
- De Meyer, M. 1996. World catalogue of Pipunculidae (Diptera). *Studiedocumenten van het Koninklijk Belgisch Instituut voor Natuurwetenschappen*, no. 86. 127 pp.
- De Meyer, M. 1997. Contribution to the Pipunculidae fauna of Spain: (Diptera). *Beitraege zur Entomologie*, **47**(2): 421–450.
- Dempewolf, M. 1996. Taxonomical notes on west palaeartic Pipunculidae, including the description of two new *Eudorylas* species (Diptera). [Anmerkungen zur Taxonomie westpaläarktischer Pipunculiden nebst der Beschreibung von zwei neuen *Eudorylas*-Arten (Diptera)]. *Studia Dipterologica*, **3**(1): 87–92.
- Dempewolf, M. 1998. On the taxonomy of two German pipunculid flies, with remarks on the terminology of the male genitalia (Diptera). *Beitraege zur Entomologie*, **48**: 531–537.
- Dempewolf, M. & von der Dunk, K. 1996. A new *Eudorylas* species from Southern and Western Germany (Diptera, Pipunculidae). *Studia Dipterologica*, **3**(1): 93–96.
- Dempewolf, M. & Sander, F.W. 1999. Pipunculidae. In: Schumann, H., Bährmann, R. & Stark, A. (Eds.), *Entomofauna Germanica 2, Checkliste der Dipteren Deutschlands*. *Studia Dipterologica Supplement*, no. 2. 354 pp.
- Fallén, C.F. 1816. *Syrphici Sveciae* [part]. 22 pp. Berling, Lundae.
- Guglielmino, A. & Virla, E.G. 1997. Postembryonic development and biology of *Psammotettix alienus* (Dahlbom) (Homoptera, Cicadellidae) under laboratory conditions. *Bollettino di Zoologia, Agraria e di Bachicoltura*, **29**: 65–80.
- Kozánek, M. & Belcari, A. 1997. Structure of the ovipositor, associated sensilla and spermathecal system of entomoparasitic pipunculid flies (Diptera Pipunculidae). *Journal of Natural History*, **31**: 1273–1288.

- Kuznetsov, S.Y.** 1995. *Neodorylas* gen.n., with a key to the world genera, new synonymy and notes on the higher classification of the Pipunculidae (Diptera). *International Journal of Dipterological Research*, **6**(4): 321–333.
- Lauterer, P.** 1997. Pipunculidae. Pp. 66–67 in Chvála, M., *Check List of Diptera (Insecta) of the Czech and Slovak Republics*. Karolinum, Prague.
- Rafael, J.A.** 1996. Pipunculidae (Insecta, Diptera) of the Dominican Republic: new records and description of new species. *Annals of the Carnegie Museum*, **65**(4): 363–381.
- Rafael, J.A. & Ale-Rocha, R.** 1997. Chilean Pipunculidae (Diptera). Key to genera, new records, description of a new species of *Eudorylas* Aczél and a catalog of species. *Revista Chilena de Entomología*, **24**: 31–36.
- Rafael, J.A. & De Meyer, M.** 1992. Generic classification of the family Pipunculidae (Diptera): a cladistic analysis. *Journal of Natural History*, **26**(3): 637–658.
- Sack, P.** 1935. Dorylaidae (Pipunculidae). Pp. 1–57 in Lindner, F., *Die Fliegen der Palaearktischen Region*, vol. 4, part 4.
- Skevington, J. & Marshall, S.A.** 1997. First record of a big-headed fly, *Eudorylas alternatus* (Cresson) (Diptera: Pipunculidae), reared from the subfamily Cicadellinae (Homoptera: Cicadellidae), with an overview of pipunculid-host associations in the Nearctic Region. *The Canadian Entomologist*, **129**: 387–398.
- Von der Dunk, K.** 1997. Key to Central European species of Pipunculidae (Diptera). *Studia Dipterologica*, **4**: 289–335.
- Von der Dunk, K. & Lauterer, P.** 1998. More details on the rare *Eudorylas furvulus* Collin and *Microcephalops opacus* (Fallén) comb.n. (Diptera: Pipunculidae). *Acta Musei Moraviae, Scientiarum Biologica*, **82** (1997): 163–171.
- Zetterstedt, J.W.** 1844. *Diptera Scandinaviae disposita et descripta*, vol. 3 (pp. 895–1280). Lundae.

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail:iczn@nhm.ac.uk).

Case 3149

Proposed conservation of 31 species-group names originally published as junior primary homonyms in *Buprestis* Linnaeus, 1758 (Insecta, Coleoptera)

C.L. Bellamy

Natural History Museum of Los Angeles County, 900 Exposition Boulevard, Los Angeles, California 90007, U.S.A. (e-mail: cbellamy@nhm.org)

Abstract. The purpose of this application is the conservation of 31 specific names which have been in use for buprestid beetles for very many years but which, when originally published in combination with *Buprestis*, were junior primary homonyms. The species are now placed in many different genera. In none of these cases have the species denoted by the homonyms been considered congeneric since the 19th-century, if at all, and this case is submitted in accord with Article 23.9.5 of the *Code*.

Keywords. Nomenclature; taxonomy; Coleoptera; BUPRESTIDAE; *Buprestis*; buprestids; jewel beetles.

1. According to Article 23.9.5 of the Code, when two or more primary homonyms are in use 'but the names apply to taxa not considered congeneric after 1899, an author must not automatically replace the junior homonym; the case should be referred to the Commission and meanwhile prevailing usage of both names is to be maintained'. Therefore, I refer a number of primary homonymy situations from the very well-known genus *Buprestis* Linnaeus, 1758 (type genus of the jewel beetle family BUPRESTIDAE Leach, 1815), and propose the conservation of the existing usage of 31 specific names which have not appeared in homonymous combinations since the 19th-century and in some cases have never been considered congeneric with their senior homonyms. In the 18th century, and in the early part of the 19th, *Buprestis* was a 'catch-all' genus (by 1800 more than 250 species had been described in combination with that generic name), but for more than a hundred years taxa first published in *Buprestis* have been divided amongst many genera and the original primary homonymies have been overlooked or ignored. In some cases the senior homonyms have not been in use because they have older synonyms. To now abandon the longstanding usage of numerous specific names would be taxonomically extremely confusing, and it is fortunate that the new Code dictates that this must no longer be done unless the Commission so rules.

2. The cases of primary homonymy of specific names originally published in combination with *Buprestis* are given below in alphabetical order. The junior name(s) is/are given first.

(1) *B. arcuata* Laporte & Gory, 1837 (p. 159). Preoccupied by *B. arcuata* Say, 1825 (p. 251). *B. arcuata* Laporte & Gory was transferred to *Cinyra* Laporte & Gory, 1837 by Gemminger & Harold (1869, p. 1381) and later into *Spectralia* Casey, 1909; it is now known as *S. arcuata*. *B. arcuata* Say was placed in *Agrilus* Curtis, 1825 by Say (1839, p. 162) and is now known as *A. arcuatus*.

(2) *B. aurata* Fabricius, 1787 (p. 178). Preoccupied by *B. aurata* Pallas, 1776 (p. 719). *B. aurata* Pallas was transferred to *Erythyrea* Serville in Dejean, 1833 by Marseul (1865, p. 190) and is now known as *E. aurata*. The Fabricius taxon was transferred into *Chrysochroa* Laporte & Carcel, 1833 by Laporte & Gory (1835, p. 16), and later into *Chryspina* Théry, 1926 (a replacement name for the junior homonym *Chryspis* Saunders, 1869); it is now known as *Chryspina aurata*. Another species was called *B. aurata* by Thunberg (1787, p. 52), but since Saunders (1871, p. 50) it has been treated as a synonym of *Aristosoma suturale* (Thunberg, 1789) and I do not propose the conservation of its name.

(3) *B. bella* Gory, 1840 (p. 116). Preoccupied by *B. bella* Guérin-Ménéville, 1830 (p. 66). *B. bella* Guérin-Ménéville was moved into *Anthaxia* Eschscholtz, 1829 by Mannerheim (1837, p. 86) and is currently treated as a junior synonym of *Curis maulica* (Molina, 1782). *B. bella* Gory was transferred to *Poecilonota* Eschscholtz, 1829 by Lacordaire (1857, p. 37) and is now placed in *Scintillatrix* Obenburger, 1956.

(4) *B. bilineata* Latreille, 1813 (p. 60). Preoccupied by *B. bilineata* Weber, 1801 (p. 74). *B. bilineata* Latreille was transferred to *Psiloptera* Solier, 1833 by Dejean (1833, p. 76) and is currently placed in *Pseudolampetis* Obenburger, 1926. *B. bilineata* Weber was placed in *Agrilus* Curtis, 1825 by Say (1839, p. 162) and is now known as *A. bilineatus*.

(5) *B. cayennensis* Herbst, 1801 (p. 56). Preoccupied by *B. cayennensis* Gmelin, 1790 (p. 1931). The name *B. cayennensis* has been used for three different species. *B. cayennensis* Gmelin was placed in *Actenodes* Dejean, 1833 by Gemminger & Harold (1869, p. 1421) and is known as *A. cayennensis*. *B. cayennensis* Herbst was first transferred to *Chrysobothris* Eschscholtz, 1829 by Dejean (1833, p. 79) and later to *Colobogaster* Solier, 1833; it is now known as *Colobogaster cayennensis*. *B. cayennensis* Buquet in Gory, 1840 was transferred to *Melanophila* Eschscholtz, 1829 by Lacordaire (1857, p. 48); it is currently treated as a junior synonym of *Eudiana guianensis* (Chevrolat, 1838) and I do not propose its conservation.

(6) *B. coerulea* Olivier, 1790 (p. 21). Preoccupied by *B. coerulea* Thunberg, 1789 (p. 91). The name *B. coerulea* has been used for three different species. *B. coerulea* Olivier was transferred to *Psiloptera* Solier, 1833 by Redtenbacher (1843, p. 505) and later to *Lampetis* Dejean, 1833; it is now known as *L. coerulea*. *B. coerulea* Thunberg, 1789 was transferred to *Meliboeus* Deyrolle, 1864 by Saunders (1871, p. 106) and is now known as *M. coeruleus*. *B. coerulea* Rossi, 1790 (p. 407) has been treated as a synonym of *Agrilus cyanescens* Ratzeburg, 1837 since Saunders (1871, p. 106) and I do not propose its conservation.

(7) *B. cuprifera* Laporte & Gory, 1836 (p. 59). Preoccupied by *B. cuprifera* Kirby, 1818 (p. 457). *B. cuprifera* Laporte & Gory has been placed in *Polybothris* Spinola, 1837 since Kerremans (1892). The Kirby taxon was transferred to *Plagiopoe* Saunders, 1868 by Saunders (1869, p. 13); it is now placed in *Torresita* Gemminger & Harold, 1869, a replacement name for the preoccupied *Plagiopoe*. A subsequent use of *B. cuprifera* by Laporte & Gory (1837, p. 119) is currently treated as a synonym of *Melobasis propinqua* (Laporte & Gory, 1837, p. 120) and I do not propose its conservation.

(8) *B. cyanea* Rossi, 1790 (p. 20). Preoccupied by *B. cyanea* Fabricius, 1775 (p. 223). The name *B. cyanea* has been used for three different species. *B. cyanea*

Rossi has been placed in *Agrilus* Curtis, 1825 since that genus was established. *B. cyanea* Fabricius is the type species of *Phaenops* Dejean, 1833. *B. cyanea* Olivier, 1790 (p. 91) has been treated as a junior synonym of *Agrilus viridis* (Linnaeus, 1758) since Dejean (1833, p. 83) and I do not propose its conservation.

(9) *B. cyanipes* Say, 1823 (p. 164). Preoccupied by *B. cyanipes* Fabricius, 1787 (p. 178). *B. cyanipes* Say has been placed in *Poecilonota* Eschscholtz, 1829 since LeConte (1860, p. 254) and is a well-known North American species. *B. cyanipes* Fabricius is a Jamaican species placed in *Polycesta* Serville in Dejean, 1833 since Kerremans (1892, p. 161).

(10) *B. depressa* Fabricius, 1775 (p. 219). Preoccupied by *B. depressa* Linnaeus, 1771 (p. 533). The name *B. depressa* has been used four times, with two of the junior homonyms replaced earlier. *B. depressa* Fabricius has been placed in *Pelecopselaphus* Solier, 1833 since Solier (1833, p. 287). *B. depressa* Linnaeus, 1771 has been in *Polycesta* Serville in Dejean, 1833 since Lacordaire (1857, p. 63). Since Laporte & Gory (1838, p. 3) *B. depressa* Fabricius, 1775 has been known by the replacement name *Strigopteroïdes aegyptiaca* (Gmelin, 1790, p. 1932). *B. depressa* Olivier, 1790 (p. 39) is known by the replacement name *Polycesta olivieri* Waterhouse, 1904 (p. 255).

(11) *B. drummondi* Kirby, 1837 (p. 157). Preoccupied by *B. drummondi* Laporte & Gory, 1836 (p. 37). *B. drummondi* Kirby was transferred to *Melanophila* Eschscholtz, 1829 by Gemminger & Harold (1869, p. 1385); it is currently known as *Phaenops drummondi*. *B. drummondi* Laporte & Gory was transferred to *Psiloptera* Solier, 1833 by Gemminger & Harold (1869, p. 1366) and is currently placed in *Lampetis* Dejean, 1833.

(12) *B. excellens* Klug, 1855 (p. 644). Preoccupied by *B. excellens* Klug, 1825 (p. 421). *B. excellens* Klug, 1855 has been placed in *Acmaeodera* Eschscholtz, 1829 since Lacordaire (1857, p. 68), while the species named in 1825 has been placed in *Conognatha* Eschscholtz, 1829 since Dejean (1833, p. 76).

(13) *B. fasciata* Villers, 1789 (p. 339). Preoccupied by *B. fasciata* Fabricius, 1787 (p. 177). The name *B. fasciata* has been used for three species. *B. fasciata* Villers has been placed in *Coraebus* Gory & Laporte, 1839 since Saunders (1871, p. 104). *B. fasciata* Fabricius was placed in *Ancylochira* Eschscholtz, 1829 by Dejean (1833, p. 78) and is now known as *Cypriacus fasciatus*. *B. fasciata* Voet, 1806 (p. 96) has been treated as a junior synonym of *Dismorpha linearis* (Linnaeus, 1758) since Saunders (1871, p. 112) and I do not propose its conservation.

(14) *B. femorata* Olivier, 1790 (p. 47). Preoccupied by *B. femorata* Villers, 1789 (p. 338). *B. femorata* Olivier has been placed in *Chrysobothris* Eschscholtz, 1829 since Dejean (1833, p. 80) and is a widespread and economically important species in North America. The Villers taxon has long been synonymized under *Anthaxia hungarica* (Scopoli, 1772).

(15) *B. flavofasciata* Herbst, 1801 (p. 306). Preoccupied by *B. flavofasciata* Piller & Mitterpacher, 1783 (p. 84). Herbst's taxon has been treated as a subspecies of *Acmaeodera trifasciata* (Thunberg, 1789, p. 95) since Gemminger & Harold (1869, p. 1412). *B. flavofasciata* Piller & Mittenpacher is the type species of *Acmaeodorella* (*Carininota*) Volkovitsh, 1979.

(16) *B. foveicollis* Gory, 1840 (p. 95). Preoccupied by *B. foveicollis* d'Urville in Boissudal, 1835 (p. 73). The southern African *B. foveicollis* Gory was transferred to

Damarsila Thomson, 1878 by Thomson (1878, p. 33) and is now placed in *Lampetis* Dejean, 1833. *B. foveicollis* d'Urville was designated by Deyrolle (1864, p. 46) as the type species of his genus *Cyphogastra* and is still placed in that genus.

(17) *B. geminatus* Say, 1823 (p. 163). Preoccupied by *B. geminatus* Illiger, 1803 (p. 244). Say (1839, p. 162) transferred his *B. geminatus* of 1823 to *Agrilus* Curtis, 1825; it is still placed in that genus and is a widespread eastern North American species. Since Dejean (1833, p. 81) *B. geminatus* Illiger has been treated as a junior synonym of *Sphenoptera rauca* (Fabricius, 1787, p. 177).

(18) *B. gibbicollis* Say, 1823 (p. 161). Preoccupied by *B. gibbicollis* Illiger, 1803 (p. 239). *B. gibbicollis* Say was transferred to *Ptosima* Serville in Dejean, 1833 by LeConte (1860, p. 221) and is widespread and well-known in eastern North America. Illiger's taxon from Iberia was transferred to *Coraebus* Gory & Laporte, 1839 by Gistel (1856, p. 135) and is now placed in *Meliboeus* Deyrolle, 1864.

(19) *B. haemorrhoidalis* Olivier, 1790 (p. 38). Preoccupied by *B. haemorrhoidalis* Herbst, 1780 (p. 97). Olivier's species was transferred to *Stigmodera* Eschscholtz, 1829 by Laporte & Gory (1838, p. 55) and is currently placed in the Neotropical genus *Conognatha* Eschscholtz, 1829. *B. haemorrhoidalis* Herbst is a widespread Palaearctic species still classified in *Buprestis*.

(20) *B. interrupta* Laporte & Gory, 1837 (p. 81). Preoccupied by *B. interrupta* Olivier, 1790 (p. 26). Gemminger & Harold (1869, p. 1368) transferred *B. interrupta* Laporte & Gory to *Psiloptera* Solier, 1833; it is now regarded as a subspecies of *Lampetis rugosa* (Palisot de Beauvois, 1807, p. 44). Olivier's taxon has been known as *Sternocera interrupta* since Dejean (1883, p. 74).

(21) *B. maculipennis* Gory, 1841 (p. 118). Preoccupied by *B. maculipennis* Laporte & Gory, 1837 (p. 111). Gory's taxon of 1841 remains in *Buprestis*, while the earlier homonym has been used as *Halecia maculipennis* (Laporte & Gory, 1837) since Gemminger & Harold (1869, p. 1361).

(22) *B. mucronata* Laporte & Gory, 1836 (p. 62). Preoccupied by *B. mucronata* Klug, 1825 (p. 426). Gemminger & Harold (1869, p. 1364) placed *B. mucronata* Laporte & Gory in *Polybothris* Dejean, 1833 and on p. 1442 transferred Klug's species to *Agrilus* Curtis, 1825; these placements have been maintained ever since.

(23) *B. nobilis* Fabricius, 1787 (p. 180). Preoccupied by *B. nobilis* Linnaeus, 1758 (p. 410). *B. nobilis* Fabricius has been placed in *Chrysobothris* Eschscholtz, 1829 since Saunders (1871, p. 95), while Dejean (1833, p. 80) designated *B. nobilis* Linnaeus as the type species of his new genus *Actenodes*, in which it remains today.

(24) *B. picta* Thunberg, 1827 (p. 47) and *B. picta* Waterhouse, 1882 (p. 15). Both preoccupied by *B. picta* Pallas, 1773 (p. 719). The name *B. picta* has been used for three species. The oldest homonym was transferred to *Melanophila* Eschscholtz, 1829 by Gemminger & Harold (1869, p. 1385) and later to *Trachypteris* Kirby, 1837, of which it is the type species; it is currently known as *T. picta* (Pallas, 1773). *B. picta* Thunberg was transferred to *Julodis* Solier, 1833 by Saunders (1871, p. 3) and since Kerremans (1902, p. 13) has been known as *Neojulodis picta* (Thunberg, 1827). *B. picta* Waterhouse, 1882 is still placed in *Buprestis*.

(25) *B. pumila* Klug, 1829 (p. 37). Preoccupied by *B. pumila* Illiger, 1803 (p. 275). *B. pumila* Klug has been placed in *Anthaxia* Eschscholtz, 1829 at least since Gemminger & Harold (1869, p. 1390), while *B. pumila* Illiger has been in *Trachys* Fabricius, 1801 at least since Lacordaire (1857, p. 88).

(26) *B. salicis* Lewis, 1893 (p. 337). Preoccupied by *B. salicis* Fabricius, 1776 (p. 237). The placement by Lewis of his taxon in *Buprestis* is inexplicable; it was transferred to *Trachys* Fabricius, 1801 by Kerremans (1903, p. 310) and is now treated as a subspecies of *T. minutus* (Linnaeus, 1758). *B. salicis* Fabricius has been placed in *Anthaxia* Eschscholtz, 1829 since Dejean (1833, p. 80).

(27) *B. sulcata* Fischer von Waldheim, 1824 (p. 197). Preoccupied by *B. sulcata* Thunberg, 1789 (p. 90). The Fischer von Waldheim taxon has been placed in *Sphenoptera* Dejean, 1833 since Gemminger & Harold (1869, p. 1416). *B. sulcata* Thunberg, 1789 was transferred to their new genus *Chrysodema* by Laporte & Gory (1835, p. 18) and is currently placed in *Iridotaenia* Deyrolle, 1864. A subsequent use of the name *B. sulcata* by Thunberg (1827, p. 44) has been treated as a junior synonym of *Pelecopselaphus depressus* (Fabricius, 1775, p. 219) since Saunders (1871, p. 19).

(28) *B. variolosa* Fabricius, 1801 (p. 109). Preoccupied by *B. variolosa* Paykull, 1799 (p. 219). The Fabricius taxon was transferred to *Psiloptera* Solier, 1833 by Gemminger & Harold (1869, p. 1369) and is currently placed in *Lampetis* Dejean, 1833. *B. variolosa* Paykull was transferred to his new genus *Lampra* by Dejean (1833, p. 78); it was designated as the type species of *Poecilnota* Eschscholtz, 1829 in Opinion 1825 (1996). Another species called *B. variolosa* by Laporte & Gory (1836, p. 30) is now known by the replacement name *Lampetis coeruleitarsis* (Saunders, 1871, p. 23).

(29) *B. ventralis* Waterhouse, 1882 (p. 14). Preoccupied by *B. ventralis* Laporte & Gory, 1837 (p. 158). *B. ventralis* Waterhouse remains in *Buprestis*, while the Laporte & Gory taxon was transferred to *Cinyra* Laporte & Gory, 1837 by Lacordaire (1857, p. 46) and to *Halecia* Laporte & Gory, 1837, in which it is now placed, by Saunders (1871, p. 20).

(30) *B. vetusta* Boisduval, 1835 (p. 85). Preoccupied by *B. vetusta* Ménétries, 1832 (p. 152). The Boisduval taxon is the type species by monotypy of *Nascio* Laporte & Gory, 1837. *B. vetusta* Ménétries was transferred to *Acmaeodera* Eschscholtz, 1829 by Gemminger & Harold (1869, p. 1414) and is currently known as *Acmaeoderella vetusta*.

3. As stated at the outset, the junior primary homonyms listed above have been in use for considerably more than 100 years and to displace them now would upset the established nomenclature in numerous genera without serving any purpose. In some cases there are available synonyms which could be introduced as substitute names, but in others entirely new names would have to be formulated; in neither situation would the changes offer anything but loss of information and confusion. This application for the conservation of prevailing usage is submitted in the interests of stability and in accord with Article 23.9.5 of the *Code*.

4. The International Commission on Zoological Nomenclature is accordingly asked to use its plenary power to rule that the following specific names are not to be treated as invalid by reason of having been originally published as junior primary homonyms in combination with *Buprestis* Linnaeus, 1758, and to place these names on the Official List of Specific Names in Zoology:

- (1) *arcuata* Laporte & Gory, 1837;
- (2) *aurata* Fabricius, 1787;
- (3) *bella* Gory, 1840;
- (4) *bilineata* Latreille, 1813;

- (5) *cayennensis* Herbst, 1801;
- (6) *coerulea* Olivier, 1790;
- (7) *cuprifera* Laporte & Gory, 1836;
- (8) *cyanea* Rossi, 1790;
- (9) *cyanipes* Say, 1823;
- (10) *depressa* Fabricius, 1775;
- (11) *drummondi* Kirby, 1837;
- (12) *excellens* Klug, 1855;
- (13) *fasciata* Villers, 1789;
- (14) *femorata* Olivier, 1790;
- (15) *flavofasciata* Herbst, 1801;
- (16) *foveicollis* Gory, 1840;
- (17) *geminatus* Say, 1823;
- (18) *gibbicollis* Say, 1823;
- (19) *haemorrhoidalis* Olivier, 1790;
- (20) *interrupta* Laporte & Gory, 1837;
- (21) *maculipennis* Gory, 1841;
- (22) *mucronata* Laporte & Gory, 1836;
- (23) *nobilis* Fabricius, 1787;
- (24) (a) *picta* Thunberg, 1827;
(b) *picta* Waterhouse, 1882;
- (25) *pumila* Klug, 1829;
- (26) *salicis* Lewis, 1893;
- (27) *sulcata* Fischer von Waldheim, 1824;
- (28) *variolosa* Fabricius, 1801;
- (29) *ventralis* Waterhouse, 1882;
- (30) *vetusta* Boisduval, 1835.

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References

- Boisduval, J.B.A.D. de.** 1835. *Voyage de découvertes de l'Astrolabe exécuté . . . pendant les années 1826–1827–1828–1829, sous les commandement de M.J. Dumont d'Urville. Faune entomologique de l'Océan Pacifique, avec l'illustration des insectes nouveaux recueillis pendant le voyage.* Deuxième partie. Coléoptères et autres ordres. vii, 716 pp. Tastu, Paris.
- Boisduval, J.B.A.D. de & Lacordaire, J.T.** 1835. *Faune entomologique des environs de Paris . . .*, vol. 1. 17, cii, 696 pp. Méquignon-Marvis, Paris.
- Dejean, P.F.M.A.** 1833. *Catalogue des Coléoptères de la collection de M. le Comte Dejean*, fasc. 1. 96 pp. Méquignon-Marvis, Paris.
- Deyrolle, H.** 1864. Description des Buprestides de la Malaisie recueillis par M. Wallace. *Annales de la Société Entomologique de Belgique*, **8**: 1–312.
- Fabricius, J.C.** 1775. *Systema entomologiae . . .* 832 pp. Kortii, Flensburg.
- Fabricius, J.C.** 1776. *Genera insectorum.* xiv, 310 pp. Bartsch, Chilonii.
- Fabricius, J.C.** 1787. *Mantissa insectorum . . .*, vol. 1, 348 pp; vol. 2, 382 pp. Proft, Hafniae.
- Fabricius, J.C.** 1801. *Systema Eleutheratorum . . .*, vol. 2. 687 pp. Bibliopolii Academici Novi, Kiliae.

- Fischer von Waldheim, G.** 1824. *Entomographia Imperii Russici. Genera Insectorum systematica exposita et analysi iconographica instructa*. Coleoptera. Volume 2 (1823–1824). xx, 262 pp., 40 pls.
- Gemminger, M. & Harold, E. von.** 1869. *Catalogus coleopterorum hucusque descriptorum synonymicus et systematicus*, vol. 5 (pp. 1347–1608). Monachii, London.
- Gistel, J.N.F.X.** 1856. *Pleroma zu den Mysterien der europäischen Insectenwelt. Mit einem systematischen Verzeichniss der Schmetterlinge und Käfer Europas*. 250 pp. Schorner, Straubing.
- Gmelin, J.F.** 1790. *Caroli a Linné Systema Naturae*, Ed. 13, vol. 1 (4, Insecta, pp. 1517–2224). Lipsiae.
- Gory, H.L.** 1840–1841. *Histoire naturelle et iconographie des insectes Coléoptères*. Monographie des buprestides, Supplement. Duméril, Paris.
- Guérin-Ménéville, F.E.** 1830. Crustacées, Arachnides et Insectes. In: Duperrey, L.J., *Voyage autour du monde sur la Coquille*. Zoologie, vol. 2, pt. 2, div. 1. 319 pp., 22 pls.
- Harold, E. von.** 1869. *Berichtigungen und Zusätze zum Catalogus Coleopterorum synonymicus et systematicus*. Coleopterologische Hefte 5, pp. 112–119, 122–125.
- Herbst, J.F.W.** 1780. Beschreibung aller Prachtkäfer . . . *Schriften der Berlinerischen Gesellschaft Naturforschender Freunde*, 1: 85–100.
- Herbst, J.F.W.** 1801. *Natursystem aller bekänten in-und ausländischen Insecten, als eine Fortsetzung der Büssonschen Naturgeschichte*. Der Käfer, vol. 9. 344 pp.
- Holm, E.** 1978. *Monograph of the genus Acmaeodera Eschscholtz (Coleoptera: Buprestidae) of Africa south of the Sahara*. Department of Agricultural Technical Services, Republic of South Africa, Entomology Memoir no. 47. 210 pp.
- Illiger, J.C.W.** 1803. Verzeichniss der in Portugal einheimischen Käfer. Erste Lieferung. *Magazin für Insectenkunde*, 2: 186–258.
- Kerremans, C.** 1892. Catalogue synonymique des Buprestides decrits de 1758 à 1890. *Mémoires de la Société Entomologique de Belgique*, 1: 1–304.
- Kerremans, C.** 1902. Coleoptera, Fam. Buprestidae. In: Wytsman, P. (Ed.), *Genera Insectorum*, Fasc. 12a (pp. 1–48). Verteneuil & Desmet, Bruxelles.
- Kerremans, C.** 1903. Coleoptera, Fam. Buprestidae [contd.]. In: Wytsman, P. (Ed.), *Genera Insectorum*, Fasc. 12b, 12c and 12d (pp. 49–338). Verteneuil & Desmet, Bruxelles.
- Kirby, W.** 1818. A description of several new species of Insects collected in New Holland by Robert Brown. *Transactions of the Linnean Society of London*, 12: 454–482.
- Kirby, W.** 1837. The Insects. In: Richardson, J. (Ed.), *Fauna Boreali-Americana*, part 4. 325 pp. Longman, London.
- Klug, J.C.F.** 1825. Entomologiae Brasilianae specimen alterum, sistens insectorum coleopterorum nondum descriptorum centuriam. *Nova Acta Physico-Medica Academiae Caesareae-Leopoldino Carolinae, Naturae Curiosorum*, 12(2): 421–476.
- Klug, J.C.F.** 1829. *Symbolae physicae seu icones et descriptiones insectorum quae ex itinere per Africam borealem et Asiam occidentalem Friderici Gulielmi Hemprich et Christiani Godofredi Ehrenberg . . .*, fol. 5. Mittler, Berlin.
- Klug, J.C.F.** 1855. Diagnosen der neuen . . . Coleopteren . . . von Mossambique. *Bericht über die zur Bekanntmachung geeigneten Verhandlungen der Königlich Preussischen Akademie der Wissenschaften zu Berlin*, 1855: 643–660.
- Lacordaire, J.T.** 1857. *Histoire naturelle des insectes*. Genera des Coléoptères . . . , vol. 4. 554 pp. Roret, Paris.
- Laporte, F.L. de L. (Comte de Castelnau) & Gory, H.L.** 1835–1838. *Histoire naturelle et iconographie des insectes coléoptères*, vol. 1. Duméril, Paris.
- Latreille, P.A.** 1813. Insects de l'Amérique équinoxiale recueillis pendant le voyage de MM. de Humboldt et Bonpland. Pp. 127–252 in Humboldt, F.H.A. von & Bonpland, A.J.A., *Voyage aux régions équinoxiales du Nouveau Continent, fait en 1799–1804*, vol. 2, part 2. Paris.
- LeConte, J.L.** 1860. Revision of the Buprestidae of the United States. *Transactions of the American Philosophical Society*, (n.s.)11: 187–258.
- Lewis, G.** 1893. On the Buprestidae of Japan. *Journal of the Linnean Society of London (Zoology)*, 24: 327–338.
- Linnaeus, C.** 1758. *Systema Naturae*, Ed. 10, vol. 1. 824 pp. Salvii, Holmiae.

- Linnaeus, C.** 1771. *Mantissa Plantarum*. 588 pp. Holmiae.
- Mannerheim, C.G. von.** 1837. Enumération des Buprestides, et description de quelques nouvelles espèces de cette tribu de la famille des Sternoxes, de la collection de M. Le Comte Mannerheim. *Bulletin de la Société Impériale des Naturalistes de Moscou*, **8**: 1–126.
- Marseul, S.A. de.** 1865. Monographie des buprestides, famille des sternoxes de Latreille. L'Abeille. *Mémoires d'Entomologie*, **2**: 1–289.
- Molina, J.I.** 1782. *Saggio sulla storia naturale del Chili*. 367 pp. Bologna.
- Olivier, G.A.** 1790. *Entomologie, ou histoire naturelle des insectes* Coléoptères, genera 9–34. Vol. 2(32). 485 pp., 63 pls. Baudouin, Paris.
- Palisot de Beauvois, A.M.F.S.** 1807. *Insectes recueillis en Afrique et en Amérique*, vol. 16. 276 pp. Levrault, Paris.
- Pallas, P.S.** 1776. *Reise durch verschiedene Provinzen des Russischen Reiches in den Jahren 1768–1774*. Pisani.
- Paykull, G. von.** 1799. *Fauna Suecica*, vol. 2. Insecta (Col.). 234 pp. Edman, Upsaliae.
- Piller, M. & Mitterpacher, L.** 1783. *Iter per Poseganum, Sclavoniae provinciam mensibus Junio et Julio 1782 susceptum*. 147 pp. Budae.
- Redtenbacher, L.** 1843. *Abbildungen und Beschreibungen neuer und seltner Thiere und Pflanzen, in Syrien und im westlichen Taurus gesammelt von Th. Kotschy*. Coleoptera. 254 pp., 2 pls. Schweizerbart, Stuttgart.
- Rossi, P.** 1790. *Fauna Etrusca, sistens Insecta, quae in provinciis Florentina et Pisana prasertim collegit P. Rossius*, vol. 1. xii, 348 pp. Thomae Masi & Sociorum, Liburni.
- Saunders, E.** 1869. Descriptions of nine new species of Buprestidae. *Transactions of the Royal Entomological Society of London*, **17**: 1–8.
- Saunders, E.** 1870. *Catalogue of the species contained in the genus Buprestis of Linnaeus, previous to its subdivision by Eschscholtz in 1829, referring each to its present genus*. 37 pp. van Voorst, London.
- Saunders, E.** 1871. *Catalogus Buprestidarum synonymicus et systematicus*. 171 pp. Janson, London.
- Say, T.** 1823. Descriptions of coleopterous insects collected in the late expedition to the Rocky Mountains performed by order of Mr. Calhoun, Secretary of War, under command of Major Long. *Journal of the Academy of Natural Sciences of Philadelphia*, **3**: 9–54, 73–104, 139–216.
- Say, T.** 1825. Descriptions of new American species of *Buprestis*, *Trachys* and *Elater*. *Annals of the Lyceum of New York*, **1**: 249–269.
- Say, T.** 1839. Description of new North American insects, and observations on some already described. *Transactions of the American Philosophical Society*, (2)**6**: 155–190.
- Solier, A.J.J.** 1833. Essai sur les Buprestides. *Annales de la Société Entomologique de France*, **2**: 261–316.
- Thomson, J.** 1878. *Typi Buprestidarum Musaei Thomsoniani*. 103 pp. Deyrolle, Paris.
- Thunberg, C.P.** 1787. *Museum Naturalium Academiae Upsalensis*. Dissertation (pp. 43–58). Uppsala.
- Thunberg, C.P.** 1789. *Novas Insectorum species*. 5. Dissertation (pp. 85–106). Uppsala.
- Thunberg, C.P.** 1827. Coleoptera Capensia, antennis filiformibus, enumerata et nova descripta. *Nova Acta Regiae Societatis Scientiarum Upsaliensis*, **9**: 1–52.
- Villers, C.J. de.** 1789. *Caroli Linnaei Entomologia*. 24, 765 pp. Piestre et Delamollière, Lugduni.
- Voet, J.E.** 1806. *Catalogus systematicus Coleopterorum*, vol. 2. Bakhuisen, Haag.
- Waterhouse, C.O.** 1882. In: Godman, F.D. & Salvin, O. (Eds.), *Biologia Centrali-Americana*, vol. 3, part 1. Insecta, Coleoptera, Buprestidae. xvi, 690 pp., 27 pls. London.
- Waterhouse, C.O.** 1904. Observations on Coleoptera of the family Buprestidae, with descriptions of new species. *Annals and Magazine of Natural History*, (7)**14**: 245–267.
- Weber, F.** 1801. *Observationes entomologicae, continentes novorum quae condidit generum characteres, et nuper detectarum specierum descriptiones*. 12, 116pp. Kiliae.

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, London, SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).

Case 3157***Halictoides dentiventris* Nylander, 1848 (currently *Dufourea dentiventris*; Insecta, Hymenoptera): proposed conservation of the specific name**

P.A.W. Ebmer

Kirchenstrasse 9, A-4048 Puchenau, Austria

Abstract. The purpose of this application is to conserve the usage of the specific name of *Dufourea dentiventris* (Nylander, 1848), the type species of *Halictoides* Nylander, 1848 (family HALICTIDAE), a well known widespread Palaearctic bee genus. The name is a junior synonym of *Dufourea dejeanii* Lepelletier, 1841 which prior to the recent discovery of its holotype was considered an unidentifiable name. It is proposed that the specific name of *D. dejeanii* Lepelletier, 1841 be suppressed.

Keywords. Nomenclature; taxonomy; Hymenoptera; APOIDEA; HALICTIDAE; *Dufourea*; *Halictoides*; *Dufourea dejeanii*; *Dufourea dentiventris*; Palaearctic.

1. Nylander (1848, p. 195) established the new genus *Halictoides* including the species *dentiventris*, of which he described the male and female. This species was designated as the type species of *Halictoides* by Cockerell & Porter (1899, p. 420). The syntypes are deposited in the Helsinki Museum. A lectotype (female) was designated by Ebmer (1976, p. 1), Zoological Museum, Helsinki No. 5153. The type locality is Tavastia, Finland.

2. Nylander's description is very precise. The name *Halictoides dentiventris* has been used in systematic publications (for example by Osičnjuk, Panfilov & Ponomareva (1978), Warncke (1979) and Ebmer (1984, 1999)) and in important regional faunas by Dusmet (1935), Pagliano (1988) and Stöckhert (1933, 1954). Eleven additional references have been given to the Commission Secretariat.

3. The nominal species *Dufourea dejeanii* was established by Lepelletier (1841, p. 228) with a short description and no locality. *D. dejeanii* was considered by Friese (1901, p. 43) and Ebmer (1984, p. 691) to be a 'nomen dubium' since Lepelletier's description did not enable the species to be identified. No zoologist has ever been able or even tried to identify this taxon and except as mentioned in the following paragraph the name was not otherwise cited in the 20th century.

4. In 1994 Baker (p. 1199) found the hitherto forgotten original specimen of *Dufourea dejeanii* in the Latreille Collection, Hope Entomological Collections in the University Museum of Oxford. Baker identified the specimen as the holotype of *D. dejeanii*. The holotype is a specimen of *H. dentiventris*, but to displace the much used name *Halictoides dentiventris* by the entirely unknown combination *H. dejeanii* would cause unjustified confusion, especially since the nominal species *H. dentiventris* is (and would remain) the type species of *Halictoides*.

5. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to suppress the name *dejeanii* Lepeletier, 1841, as published in the binomen *Dufourea dejeanii*, for the purposes of the Principle of Priority but not for those of the Principle of Homonymy;
- (2) to place on the Official List of Generic Names in Zoology the name *Halictoides* Nylander, 1848 (gender: masculine), type species by subsequent designation by Cockerell & Porter (1899) *Halictoides dentiventris* Nylander, 1848;
- (3) to place on the Official List of Specific Names in Zoology the name *dentiventris* Nylander, 1848, as published in the binomen *Halictoides dentiventris* (specific name of the type species of *Halictoides* Nylander, 1848);
- (4) to place on the Official Index of Rejected and Invalid Specific Names in Zoology the name *dejeanii* Lepeletier, 1841, as published in the binomen *Dufourea dejeanii* and as suppressed in (1) above.

References

- Baker, D.B.** 1994. Type material in the University Museum, Oxford, of bees described by Comte Amédée Lepeletier de Saint-Fargeau and Pierre André Latreille (Hymenoptera: Apoidea). *Journal of Natural History*, **28**: 1189–1204.
- Cockerell, T.D.A. & Porter, W.** 1899. Contributions from the New Mexico Biological Station. VII. Observations on bees, with descriptions of new genera and species. *Annals and Magazine of Natural History*, (7)**4**: 403–421.
- Dusmet, J.M.** 1935. Los Apidos de España. VIII. III. Género Dufoureaeinae Lep. *Eos*, **11**: 151–159.
- Ebmer, A.W.** 1976. Revision der von W. Nylander und J. Kriechbaumer beschriebenen Halictidae (Apoidea). *Nachrichtenblatt der Bayerischen Entomologen*, **25**: 1–6.
- Ebmer, A.W.** 1984. Die westpaläarktischen Arten der Gattung *Dufourea* Lepeletier, 1841 mit illustrierten Bestimmungstabellen. (Insecta: Hymenoptera: Apoidea: Halictidae: Dufoureaeinae). *Senckenbergiana Biologica*, **64**: 313–379.
- Ebmer, A.W.** 1999. Die westpaläarktischen Arten der Gattung *Dufourea* Lepeletier, 1841 (Insecta: Hymenoptera: Apoidea: Halictidae: Rophitinae) Vierter Nachtrag. *Linzer Biologische Beiträge*, **31**: 183–228.
- Friese, H.** 1901. *Dufourea* und *Halictoides*. Pp. 33–65 in: *Die Bienen Europas — Apidae Europaeae*, vol. 6. Im Selbstverlag, Innsbruck.
- Lepeletier, A.** 1841. Hyménoptères. Pp. 227–228 in: *Histoire naturelle des insectes*, vol. 2. Paris.
- Nylander, W.** 1848. Halictidae. Pp. 165–282 in Adnotationes in expositionem monographicam apum borealium. *Notiser ur Sällskapetets pro fauna et flora Fennica*, vol. 1. Förhandlingar, Helsingfors.
- Osičnjuk, A.S., Panfilov, D.V. & Ponomareva, A.A.** 1978. Apoidea — Pčelinije in Medvedeva, G.S., *Opređitel nasekomič europejskoj časti SSSR, Tom. III. Perepočatokrilič*. 584 pp. Nauka, Leningrad.
- Pagliano, G.** 1988. Catalogo degli Imenotteri italiani. I. Halictidae. *Bolletino del Museo Civico di Storia Naturale de Venezia*, **38**: 85–128.
- Stöckert, F.K.** 1933. Die Bienen Frankens. *Deutsche Entomologische Zeitschrift, Beiheft*: 1–294.
- Stöckert, F.K.** 1954. Fauna apoideorum germaniae. *Abhandlungen der Bayerischen Akademie der Wissenschaften. Mathematische-naturwissenschaftliche Klasse*, (NF)**65**: 1–87.
- Warncke, K.** 1979. Beiträge zur Bienenfauna des Iran: 3. Die Gattung *Rophites* Spin. *Bolletino del Museo Civico di Storia Naturale di Venezia*, **30**: 111–115.

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Case 3165

***Parasuchus hislopi* Lydekker, 1885 (Reptilia, Archosauria): proposed replacement of the lectotype by a neotype**

Sankar Chatterjee

Museum of TexasTech University, Box 41053, Lubbock, TX 79409–3191, U.S.A. (e-mail: mxsan@ttacs.ttu.edu)

Abstract. The purpose of this application is to designate a neotype for *Parasuchus hislopi* Lydekker, 1885, a well-known crocodile-like archosaurian reptile (phytosaur or parasuchid) from the Late Triassic Maleri Formation of India. The lectotype is fragmentary (a premaxillary rostrum), and because of this some authors have recently suggested that the name of the nominal genus *Parasuchus* Lydekker, 1885 (of which *P. hislopi* is the type species) should be replaced by *Paleorhinus* Williston, 1904. To maintain stability of usage and in accord with Article 75.5 of the Code it is proposed that the lectotype be set aside and a complete articulated skeleton be designated as the neotype.

Keywords. Nomenclature; taxonomy; Archosauria; PARASUCHIDAE; PHYTOSAURIDAE; *Parasuchus*; *Parasuchus hislopi*; *Paleorhinus*; archosaurs; parasuchids; phytosaurs; Triassic.

1. The phytosaurs (or parasuchids) are long-snouted, carnivorous reptiles of Late Triassic age superficially resembling crocodylians in size, proportions and inferred activities. I have previously (Chatterjee, 1974, pp. 251–252) discussed the originally composite nature of the nominal species *Parasuchus hislopi* Lydekker, 1885 (p. 23). The species was based on a series of specimens, including several skull fragments, bones, scutes and teeth of phytosaur origin and also a rhynchosaur basicranium, all from the Upper Triassic Maleri Formation (see Chatterjee, 1978) of the Pranhita-Godavari valley, Andhra Pradesh, India. I selected (p. 252) the premaxillary rostrum (Indian Museum, Calcutta, specimen GSI H20/11, illustrated in Lydekker, 1885, pl. 3, figs. 3, 3a) as the lectotype.

2. Subsequently (Chatterjee, 1978) I described in detail two nearly complete and articulated phytosaur skeletons from the Maleri Formation from the general locality and the horizon where Lydekker's syntypes had been found many years before. These specimens are very similar to the original phytosaur material of Lydekker and I accordingly referred them to *Parasuchus hislopi*. I suggested (pp. 87, 116–118) that *Parasuchus* Lydekker, 1885 (type species *P. hislopi* by monotypy) is generically indistinguishable from the North American genus *Paleorhinus* Williston, 1904 (p. 696; type species *Paleorhinus bransoni*) and I therefore treated the latter name as a junior subjective synonym of *Parasuchus* (noting that it could be used to denote a subgenus of *Parasuchus*). I also pointed out (p. 87) that the name PARASUCHIDAE Lydekker, 1885 (p. 22) based on *Parasuchus* is senior to the more widely used

PHYTOSAURIDAE Lydekker, 1888 (based on the indeterminate genus *Phytosaurus* Jaeger, 1828) and is therefore the valid family-group name.

3. The name *Parasuchus hislopi* is well entrenched in major books in vertebrate paleontology, with reproduction of Chatterjee's (1978) original figures (for example Benton, 1977; Carroll, 1988; Czerkas & Czerkas, 1990), and the name has appeared in all recent discussions of archosaur phylogeny (see Parrish, 1986; Benton & Clark, 1988; Walker, 1990; Sereno, 1991; Juul, 1994).

4. Ballew (1989, p. 317) noted the composite nature of the original material but did not mention the lectotype of *Parasuchus hislopi*. She applied the generic name *Paleorhinus* Williston, 1904 to all the Indian phytosaur specimens but remarked that 'upon further examination of the types *Parasuchus* may prove to be the senior synonym'. Hunt & Lucas (1991, pp. 493–494) accepted that the Indian phytosaurs were congeneric with the North American *Paleorhinus*, but they stated that the lectotype of *Parasuchus hislopi* is generically indeterminate and therefore followed Ballew (1989) in adopting *Paleorhinus* as the valid generic name. They referred to the almost complete skeletons described by Chatterjee (1978; see para. 2 above) as *Paleorhinus hislopi* rather than as *Parasuchus hislopi*, adopting the original specific name but rejecting the generic one.

5. This criticism leveled against the name *Parasuchus* (though not *hislopi*) is a common one in vertebrate paleontology, where the original type material is often fragmentary and insufficient to distinguish the taxon concerned but more complete specimens are discovered later. For example, this situation applies to many nominal species of dinosaur. In such cases the potential instability of nomenclature may be removed by the Commission using its plenary power to set aside the original inadequate type material and to designate a diagnostic neotype, and this procedure is specified in Article 75.5 of the Code. In accord with that Article I propose that the fragmentary lectotype of *Parasuchus hislopi* should be set aside and be replaced by a neotype, thereby stabilizing both the specific name and the nominal genus *Parasuchus*. The articulated skeleton no. ISIR 42 in the Geology Museum of the Indian Statistical Institute, Calcutta, described and illustrated (text-fig. 1 and pl. 8) by Chatterjee (1978) is proposed as the neotype for *Parasuchus hislopi* Lydekker, 1885.

6. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to set aside all previous fixations of name-bearing type for the nominal species *Parasuchus hislopi* Lydekker, 1885 and to designate the articulated skeleton ISIR 42 in the Geological Museum of the Indian Statistical Institute, Calcutta, as the neotype;
- (2) to place on the Official List of Generic Names in Zoology the name *Parasuchus* Lydekker, 1885 (gender: masculine), type species by monotypy *Parasuchus hislopi* Lydekker, 1885;
- (3) to place on the Official List of Specific Names in Zoology the name *hislopi* Lydekker, 1885, as published in the binomen *Parasuchus hislopi* and as defined by the neotype designated in (1) above (specific name of the type species of *Parasuchus* Lydekker, 1885).

References

- Ballew, K.L. 1989. A phylogenetic analysis of Phytosauria from the Late Triassic of the western United States. Pp. 309–339 in Lucas, S.G. & Hunt, A.P. (Eds.), *Dawn of the age*

- of dinosaurs in the American Southwest*. 414 pp. New Mexico Museum of Natural History, Albuquerque.
- Benton, M.J.** 1997. *Vertebrate paleontology*. 452 pp. Chapman & Hall, London.
- Benton, M.J. & Clark, J.M.** 1988. Archosaur phylogeny and the relationships of the Crocodylia. Pp. 295–338 in Benton, M.J. (Ed.), *The phylogeny and classification of the tetrapods*. Clarendon Press, Oxford.
- Carroll, R.L.** 1988. *Vertebrate paleontology and evolution*. 698 pp. Freeman, New York.
- Chatterjee, S.** 1974. A rhynchosaur from the Upper Triassic Maleri Formation of India. *Philosophical Transactions of the Royal Society of London, B*, **267**: 209–261.
- Chatterjee, S.** 1978. A primitive parasuchid (phytosaur) reptile from the Upper Triassic Maleri Formation of India. *Palaeontology*, **21**: 83–127.
- Czerkas, S.J. & Czerkas, S.A.** 1990. *Dinosaurs: a global view*. 247 pp. Dragon's World, Surrey.
- Hunt, A.P. & Lucas, S.G.** 1991. The *Paleorhinus* biochron and the correlation of the non-marine Upper Triassic Pangaea. *Palaeontology*, **34**: 487–501.
- Juul, L.** 1994. The phylogeny of basal archosaurs. *Palaeontologia Africana*, **31**: 487–501.
- Lydekker, R.** 1885. The Reptilia and Amphibia of the Maleri and Denwa Groups. *Palaeontologia Indica*, (4)**1**(5): 1–38.
- Parrish, J.M.** 1986. Structure and function of the tarsus in the phytosaurs (Reptilia: Archosauria). Pp. 35–43 in Padian, K. (Ed.), *The beginning of the age of dinosaurs*. Cambridge University Press, Cambridge.
- Sereno, P.C.** 1991. Basal archosaurs: phylogenetic relationships and functional implications. Society of Vertebrate Paleontology, Memoir 2. *Journal of Vertebrate Paleontology*, **11** (4), Supplement. 53 pp.
- Walker, A.D.** 1990. A revision of *Sphenosuchus acutus* Haughton, a crocodylomorph reptile from the Elliot Formation (late Triassic or early Jurassic) of South Africa. *Philosophical Transactions of the Royal Society of London, B*, **330**: 1–120.
- Williston, S.W.** 1904. Note on some new reptiles from the Upper Trias of Wyoming. *Journal of Geology*, **12**: 688–697.

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Case 3143***Euphyryne obesus* Baird, 1858 (Reptilia, Squamata): proposed precedence of the specific name over that of *Sauromalus ater* Duméril, 1856**

Richard R. Montanucci¹, Hobart M. Smith², Kraig Adler³, David L. Auth⁴, Ralph W. Axtell⁵, Ted J. Case⁶, David Chiszar⁷, Joseph T. Collins⁸, Roger Conant⁹, Robert Murphy¹⁰, Kenneth Petren¹¹, Robert C. Stebbins¹² (Addresses on p. 40)

Abstract. The purpose of this application is to conserve the long used and well known specific name of *Sauromalus obesus* (Baird, 1858) for the chuckwalla (family IGUANIDAE) from the southwest of North America by giving it precedence over the little used name *S. ater* Duméril, 1856.

Keywords. Nomenclature; taxonomy; Reptilia; Squamata; IGUANIDAE; *Sauromalus ater*; *Sauromalus obesus*; chuckwallas; southwestern North America.

1. In 1856 Duméril (p. 536, pl. 23, figs. 3 and 3a) described a new genus and single new species of iguanid lizard as *Sauromalus ater* on the basis of a single specimen presented by Lieutenant M. Jaurès to the Muséum National d'Histoire Naturelle, Paris. The holotype (MHNP 813), which lacks locality data, was collected somewhere in western Mexico during a world circumnavigating voyage of the French frigate *La Danaïde*.

2. The absence of a type locality for *Sauromalus ater* has remained an acknowledged problem for systematists working with *Sauromalus* (see Schmidt, 1922; Shaw, 1945; Hollingsworth, 1998). Shaw (1945, p. 273), unable to study the holotype due to political conditions in Europe, drew upon descriptive information in Duméril & Bocourt (1870) and Mocquard (1899), and concluded that the holotype must have originated from one of the islands off the southern coast of the Baja California peninsula. Hence, in referring to the type locality, Shaw (1945, p. 284) stated: 'Not definitely known but undoubtedly one of the several islands in the southern part of the Gulf of California where this species is known to occur'. Subsequently and without justification, Smith & Taylor (1950) further restricted the type locality to Isla Espiritu Santo.

3. Two years after Duméril, Baird (1858, p. 253) described the new genus and single new species *Euphyryne obesus* and noted that it was 'abundant in the canons of the Colorado, of California, collected by Maj. Thomas, Mex[ico] Boundary Survey, and Lt. Ives' Expedition'. The type specimen was given as USNM 4172 in the U.S. National Museum, Washington. Subsequently, Baird (1859, p. 6, pl. 27) indicated the locality of USNM 4172 as 'Fort Yuma'. Van Denburgh (1922) and Shaw (1945) correctly noted the location of Fort Yuma in California. Montanucci (2001) discussed the confusion caused by Baird's piecemeal publication of data and clarified

the particulars relating to the collector and type locality. Cope (1864) commented that the name *Euphryne* Baird, 1858 was a synonym of *Sauromalus* Duméril, 1856, but both generic names continued to be used in the literature until Cope (1875) and Coues (1875) placed *Euphryne* as a synonym of *Sauromalus* (see Hollingsworth, 1998, p. 40). *Sauromalus* has been used since that time.

4. Prior to 1922, the name *Sauromalus ater*, and not *S. obesus*, was used in most papers, including checklists and distributional accounts. Most notable among these publications are Cope (1875, 1900), Stejneger's (1891) description of a new species of *Sauromalus*, the checklists of Yarrow (1882) and Stejneger & Barbour (1917), and Van Denburgh's (1922) *The reptiles of western North America*. The recognition of *S. ater* and *S. obesus* as separate species came with publication of Schmidt's (1922, pp. 640–641) study of the amphibians and reptiles of lower California, and was followed by the later checklists of Stejneger & Barbour (1923, 1933, 1939, 1943). The taxonomic treatment of the genus *Sauromalus* by Shaw (1945) reinforced the concept that *S. ater* and *S. obesus* are separate species, a view held by virtually all subsequent workers except Hollingsworth (1998).

5. In his recent monographic revision of *Sauromalus*, Hollingsworth (1998) placed *Sauromalus obesus* in the synonymy of *S. ater*, and restricted the type locality of *S. ater* to southern Sonora. However, Montanucci (2000) argued that Hollingsworth's analysis to determine the provenance of the type specimen was unconvincing due to limitations in his statistical data, leading to ambiguous results and an unsubstantiated conclusion. Accordingly, Montanucci (2000) concluded that, in the absence of any new, compelling information, the type locality of *S. ater* remained open to speculation and conjecture.

6. The literature using the name *Sauromalus obesus* is substantially more abundant and significant than that using the name *S. ater*. Beaman, Hollingsworth, Lawler & Lowe (1997) listed 626 titles of technical and popular articles pertaining to the genus *Sauromalus*. Out of this total, the name *S. ater* is used in about 46 papers; most of these (34) were published before 1950, and nearly all pertain to taxonomy and/or distribution. The literature for *S. obesus* is profoundly more extensive by comparison, being conservatively estimated to be about 90% of the total literature for the genus as a whole, or some 550 papers. The name *S. obesus* is used, almost to the exclusion of *S. ater*, in the literature dealing with physiological ecology and thermoregulation of chuckwallas (about 133 papers), most of the basic ecological works (about 71 papers), as well as morphological studies (about 92 articles). Over 100 papers dealing with distribution use the name *S. obesus*. While the name *S. ater* has been little used and is essentially restricted to publications in technical journals, the name *S. obesus* appears in numerous papers, magazines and books, ranging from technical to popular. Clearly, the name *S. obesus* has had a long history of usage to the present, and is deeply entrenched in both the scientific and popular literature. Hence, any proposed change of this long-recognized name would certainly create extensive confusion and instability.

7. We propose that, if the names *Sauromalus ater* Duméril, 1856 and *S. obesus* (Baird, 1858) are considered to be synonyms, *obesus* should be conserved for the combined taxon by giving it precedence over *ater*. If the two names are considered to refer to different taxa (species or subspecies), then both are available for use. If the application is approved by the Commission both names will be placed on the Official

List. As mentioned in paras. 1 and 3 above, the holotypes of both nominal taxa are in existence.

8. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to give the name *obesus* Baird, 1858, as published in the binomen *Euphryne obesus*, precedence over the name *ater* Duméril, 1856, as published in the binomen *Sauromalus ater*, whenever the two are considered to be synonyms;
- (2) to place on the Official List of Generic Names in Zoology the name *Sauromalus* Duméril, 1856 (gender: masculine), type species by monotypy *Sauromalus ater* Duméril, 1856;
- (3) to place on the Official List of Specific Names in Zoology the following names:
 - (a) *obesus* Baird, 1858, as published in the binomen *Euphryne obesus*, with the endorsement that it is to be given precedence over the name *ater* Duméril, 1856, as published in the binomen *Sauromalus ater*, whenever the two are considered to be synonyms;
 - (b) *ater* Duméril, 1856, as published in the binomen *Sauromalus ater*, with the endorsement that it is not to be given priority over *obesus* Baird, 1858, as published in the binomen *Euphryne obesus*, whenever the two are considered to be synonyms.

References

- Baird, S.F.** 1858. Description of new genera and species of North American lizards in the Museum of the Smithsonian Institution. *Proceedings of the Academy of Natural Sciences of Philadelphia*, **10**: 253–256.
- Baird, S.F.** 1859. Reptiles of the boundary. *United States and Mexican Boundary Survey under the order of Lieut. Col. W.H. Emory, Major First Cavalry, and United States Commissioner*. 35 pp. Department of the Interior, Washington.
- Beaman, K.R., Hollingsworth, B.D., Lawler, H.E. & Lowe, C.H.** 1997. Bibliography of *Sauromalus* (Duméril 1856), the chuckwallas. *Smithsonian Herpetological Information Service*, (116): 1–44.
- Cope, E.D.** 1864. Contributions to the herpetology of tropical America. *Proceedings of the Academy of Natural Sciences of Philadelphia*, **16**: 166–181.
- Cope, E.D.** 1875. Check-list of North American Batrachia and Reptilia. *Bulletin of the United States National Museum*, **1**: 1–104.
- Cope, E.D.** 1900. The crocodylians, lizards, and snakes of North America. *Annual Report of the United States National Museum*, **1898**: 153–1270.
- Coues, E.** 1875. Synopsis of the reptiles and batrachians of Arizona. *Report upon Geographical and Geological Explorations and Surveys West of the One Hundredth Meridian, in Charge of First Lieut. Geo. M. Wheeler*, vol. 5, Engineer Department, United States Army, Washington, D.C.
- Duméril, A.** 1856. Descriptions des reptiles nouveaux ou imparfaitement connus de la collection du Muséum d'Histoire Naturelle et remarques sur la classification et les caractères des reptiles. *Archives du Muséum d'Histoire Naturelle, Paris*, **8**: 437–588.
- Duméril, A. & Bocourt, M.-F.** 1870. Recherches zoologiques pour servir à l'histoire de la faune de l'Amérique Centrale et du Mexique. Pp. 149–151 in Duméril, A., Bocourt, M.-F. & Mocquard, F. (Eds.), *Mission Scientifique au Mexique et dans l'Amérique Centrale*. Troisième partie. Études sur les reptiles et les batraciens. Imprimerie Nationale, Paris.
- Hollingsworth, B.D.** 1998. The systematics of chuckwallas (*Sauromalus*) with a phylogenetic analysis of other iguanid lizards. *Herpetological Monographs*, **12**: 38–191.
- Mocquard, F.** 1899. Contribution à la faune herpétologique de la Basse-Californie. *Nouvelles Archives du Muséum d'Histoire Naturelle, Paris*, (4)**1**: 297–344.

- Montanucci, R.R.** 2000. Comments on the restriction of the type locality and nomenclature of the chuckwalla, *Sauromalus ater* Duméril, 1856. *Herpetological Review*, **31**: 138–142.
- Montanucci, R.R.** 2001. A clarification of the type locality and collector of the holotype of *Sauromalus obesus* (Baird, 1858). *Herpetological Review*, **32**.
- Schmidt, K.P.** 1922. The amphibians and reptiles of Lower California and the neighboring islands. *Bulletin of the American Museum of Natural History*, **46**: 607–707.
- Shaw, C.E.** 1945. The chuckwallas, genus *Sauromalus*. *Transactions of the San Diego Society of Natural History*, **10**: 269–306.
- Smith, H.M. & Taylor, E.H.** 1950. An annotated checklist and key to the reptiles of Mexico exclusive of the snakes. *Bulletin of the United States National Museum*, **199**: 1–253.
- Stejneger, L.** 1891. Description of a new North American lizard of the genus *Sauromalus*. *Proceedings of the United States National Museum*, **14**(864): 409–411.
- Stejneger, L. & Barbour, T.** 1917. *A check list of North American amphibians and reptiles*. iv, 125 pp.; Ed. 2, x, 171 pp. (1923); Ed. 3, xiv, 185 pp. (1933); Ed. 4, xvi, 207 pp. (1939). Harvard University Press, Cambridge, Massachusetts.
- Stejneger, L. & Barbour, T.** 1943. *A check list of North American amphibians and reptiles*, Ed. 5. *Bulletin of the Museum of Comparative Zoology*, **93**: 1–260.
- Van Denburgh, J.** 1922. The reptiles of western North America. Vol. 1 (Lizards). *Occasional Papers of the California Academy of Sciences*, **10**: 1–611.
- Yarrow, H.C.** 1882. Check list of North American Reptilia and Batrachia, with catalogue of specimens in U.S. National Museum. *Bulletin of the United States National Museum*, **24**: 1–249.

¹Department of Biological Sciences, Clemson University, Clemson, South Carolina 29634–1903, U.S.A. (e-mail: rrmnt@clemson.edu).

²Department of Environmental, Population and Organismic Biology, University of Colorado, Boulder, Colorado 80309–0334, U.S.A.

³Section of Neurobiology and Behavior, Seeley G. Mudd Hall, Cornell University, Ithaca, New York 14853–2720, U.S.A.

⁴Florida Museum of Natural History, University of Florida, Gainesville, Florida 32611–7800, U.S.A.

⁵Department of Biological Sciences, Southern Illinois University, Edwardsville, Illinois 62025–1651, U.S.A.

⁶Department of Biology, University of California at San Diego, San Diego, California 92093–0116, U.S.A.

⁷Department of Psychology, University of Colorado, Boulder, Colorado 80309–0345, U.S.A.

⁸The Center for North American Amphibians and Reptiles, 1502 Medinah Circle, Lawrence, Kansas 66047, U.S.A.

⁹6900 Las Animas, NE, Albuquerque, New Mexico 87110–3527, U.S.A.

¹⁰Centre for Biodiversity, Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario, Canada, M5S 2C6.

¹¹Department of Biological Sciences, University of Cincinnati, Cincinnati, Ohio 45221–0006, U.S.A.

¹²601 Plateau Drive, Kensington, California 94708, U.S.A.

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).

Case 3022***Catalogue des mammifères du Muséum National d'Histoire Naturelle* by Étienne Geoffroy Saint-Hilaire (1803): proposed placement on the Official List of Works Approved as Available for Zoological Nomenclature**

Peter Grubb

35 Downhills Park Road, London N17 6PE, U.K.

(e-mail: pgrubb35@aol.com)

Abstract. At least 24 generic and specific names for mammals established by Étienne Geoffroy Saint-Hilaire in his 1803 *Catalogue des mammifères du Muséum National d'Histoire Naturelle* (Paris) have been treated as available and valid and have been used, some very widely. Nevertheless, the status of the *Catalogue* as an available work has been challenged periodically between 1922 and 1993. Even though in 1963 the *Catalogue* had been shown to satisfy the criteria for publication, it was considered to be unavailable in *Mammal species of the world* edited by Wilson & Reeder (1993). The present application proposes that the nomenclatural instability be resolved by placing the work on the Official List of Works Approved as Available for Zoological Nomenclature. The generic name *Scalopus* and five specific names of Geoffroy (1803) would require individual conservation if the *Catalogue* were to be treated as unavailable. In March 1971 (Opinion 945) the specific name of *Sciurus* (currently *Xerus* or *Euxerus*) *erythropus* for the Sub-Saharan ground squirrel was placed on the Official List with authorship and date attributed to Geoffroy (1803).

Keywords. Nomenclature; taxonomy; Mammalia; Étienne Geoffroy Saint-Hilaire; *Catalogue des mammifères du Muséum National d'Histoire Naturelle* (1803); *Scalopus*; *Pteropus rufus*; *Saguinus niger*; *Canis niloticus*; *Proechimys guyannensis*; *Herpailurus yagouaroundi*; moles; grass rats; fruit bats; tamarin monkeys; red foxes; jaguarundis; spiny rats.

1. In 1803 Étienne Geoffroy Saint-Hilaire produced the *Catalogue des mammifères du Muséum National d'Histoire Naturelle*, a book of 272 numbered pages in octavo describing over 290 species represented by specimens in the Paris Museum. Over 60 species were considered to be new (Table 1) and Geoffroy's names for them were used by Desmarest (1804a, 1804b, 1816–1819, 1820–1822) and numerous other authors (Tables 1 and 2). The status of the *Catalogue* has been questioned on the suggested grounds that it was never published. Following a submission by J.R. Ellerman and T.C.S. Morrison-Scott, an attempt was made to declare the work unavailable by Dr W.E. China (BZN 19: 289, September 1962), then Assistant Secretary to the Commission, but this was later withdrawn (China, BZN 20: 243, July 1963) in the light of comments made by Prof L.B. Holthuis (BZN 20: 242) who argued that the work had been published in the sense of the Code and was therefore available. Without addressing this episode, Wilson & Reeder (1993) in *Mammal species of the*

world considered the *Catalogue* to be unavailable. Some authors use Geoffroy's (1803) names and others do not. Different names are in use for the same taxon and different authors and dates are cited for the same name. It is very desirable that this instability be resolved and that the Commission be asked to rule on its status.

2. One generic and some 23 species-group names are in use as valid names for mammal taxa and all have been acknowledged in the literature as established by Geoffroy (1803). Under each name there is a full description of specimens then in Paris. Two generic (*Civetta* and *Setiger*) and two species-group names (*Phyllostoma emarginata* and *Hyaena fusca*) established by Geoffroy (1803) have remained unadopted by subsequent authors and there are junior synonyms in current use; these Geoffroy names are nomina oblita under Article 23.9 of the Code. There are also two emended generic names and five names that can be categorised as junior homonyms.

3. After the distribution of the (1803) *Catalogue*, Desmarest reported many of Geoffroy's names in the last volume of the *Nouveau dictionnaire d'histoire naturelle* in 1804, and then in the new edition of *Nouveau dictionnaire* (1816–1819) and the *Encyclopédie méthodique: Mammalogie* (1820, 1822). Desmarest fully recognised that Geoffroy had been responsible for distinguishing the species that he, Geoffroy, had named. Desmarest alluded to Geoffroy as the author of the names at every opportunity, commonly citing their source as the '*Catalogue de la Collect. du Muséum d'hist. natur.*', or in a more abbreviated form (Table 1). If the *Catalogue* were to be treated as unavailable, Desmarest should not be cited as the author of the names first published by Geoffroy; 'Geoffroy in Desmarest' would undoubtedly be a much more appropriate and accurate attribution. Desmarest's citations of Geoffroy's names are usually correct, though it is apparent that two were misquoted since Desmarest attributed his new names to Geoffroy (*Canis aegyptiacus* in place of *C. niloticus* and *Echimys cayennensis* in place of *Mus guyannensis*; Table 1). A number of Geoffroy's names have been omitted by major checklists even though they could be cited from Étienne Geoffroy in Desmarest or Isidore Geoffroy (Étienne Geoffroy's son) should Geoffroy (1803) be treated as unavailable; they are *Scalops* as an emendation of *Scalopus*, *Phyllostoma emarginata*, *Mustela rufa*, *M. javanica*, *Canis decussatus*, *C. argentatus* (originally of Shaw), *Civetta fasciata* and *Cervus coronatus*.

4. Opposition to the recognition of Geoffroy's (1803) work as available has come from authors cited in Wilson & Reeder (1993), including Sherborn (1922), Pocock (1939), Ellermann & Morrison-Scott (1951), Laurie & Hill (1954) and Harrison (1964). Sherborn (1922, p. lviii) stated that 'There is a long note on this work by I. Geoffroy in *Mag. de Zool.* (2)1, 1839, Mamm. p. 5, clearly stating that it was a mere MS [there is no such comment], and though it had been quoted, it was 'un ouvrage que son auteur avait condamné a l'oubli' '. Pocock (1939, p. 364, footnote) wrote that 'Since only a few copies of this work were printed and privately given to friends by Geoffroy, its publication is open to doubt and Desmarest may be regarded as the author of the name [*Viverra indica*], although he gave Geoffroy the credit of it'. Ellerman & Morrison-Scott (1951) discussed a number of Geoffroy's names: for example, *Erinaceus aegyptius* Fischer, 1829 was (p. 24) 'based on *E. aegyptius* Geoffroy, Cat. Mus. H. N. Paris, 1803, which was never published; proof sheets only are known (Chaworth-Musters [ms])'; *Civetta indica* (p. 282) 'is not valid from Geoffroy, since, according to Sherborn, Geoffroy's work was never published, and this was admitted by Pocock, 1939'; *Manis crassicaudatus* of Geoffroy was attributed

to Gray (1827); *Erinaceus suillus*, *E. caninus*, *Castor galliae*, *Cricetus vulgaris*, *Lemmus arvalis* (not of Pallas), and *Lemmus fulvus* were all treated as unavailable, as according to Sherborn these names were never published (however, *Cricetus vulgaris* was not established by Geoffroy and *L. fulvus* is available from [Geoffroy in] Desmarest, 1816). The name *Mus alexandrinus* Geoffroy, 1803 (p. 192) was adopted under *Rattus rattus alexandrinus* but the authors (in China, BZN 19: 288, September 1962) later acknowledged this inconsistency. They did not query that *Lemmus niloticus* Geoffroy, 1803 was the type species of *Arvicanthis* Lesson, 1842. Setzer (1952, p. 366) was perhaps the first to explicitly support availability for the *Catalogue*. He remarked that Geoffroy's names conform to Linnaean nomenclature and went on to say: 'It is believed that the statement of Isidore Geoffroy St-Hilaire [1839] to the effect that his father never intended the above work for a scientific treatise should not be accepted, inasmuch as the work is clear, concise and was published and circulated'. Laurie & Hill (1954, pp. 14, 100), citing Ellerman & Morrison-Scott (1951) for support, stated that 'This work is not nomenclatorially available as only a few copies were printed which Geoffroy gave privately to colleagues'. Ellerman & Morrison-Scott (1954) reiterated that the *Catalogue* was never published: 'This is made quite clear by I. Geoffroy, 1839 ... and the work was rejected by Sherborn. Setzer thought that I. Geoffroy said that his father's work had been published [this is not evident from what Setzer himself wrote]. But it transpired in litt. that Setzer [1952] was relying on a faulty rendering of the French text'. Up to this time quotation of the son's comments on his father's *Catalogue* had been limited to Isidore Geoffroy (1839), who stated it was unpublished ('inédit') yet gained wide publicity through the distribution of copies, although it had been doomed to oblivion ('condamné à l'oubli') by his father.

5. Hershkovitz (1955) provided the first modern examination of the history of Étienne Geoffroy's (1803) *Catalogue* (see para. 6 below), noting that Isidore Geoffroy (1847) had listed his father's *Catalogue* among the latter's other published works: the earlier (1839) comment that it was unpublished was an expression of his father's attitude to the *Catalogue*. Ellerman & Morrison-Scott (in China, BZN 19: 288, September 1962) remained unmoved: 'Anyway, Sherborn, a bibliographer with a reputation second to none, held the same view as we do, namely that É. Geoffroy's *Catalogue des mammifères* was never published, though part of the ms reached the printed stage, and was subsequently distributed to colleagues'. They averred (p. 287) that a work remains a manuscript or proof (they called the *Catalogue* a 'printed proof'), even if it had been 'distributed and consistently cited', up to the point where the distribution of copies became 'general'. Isidore Geoffroy's (1847) listing of the *Catalogue* as published 'cannot be held to be a critical judgement' (p. 287) that could override the earlier (1839) statement that it was 'inédit'. Ellerman & Morrison-Scott sought to disagree with Hershkovitz (1955) by stressing that Geoffroy had abandoned production of the book and had not renounced it once published, but Hershkovitz was not trying to make this point. In the same paper, China (BZN 19: 289) requested the Commission to place the *Catalogue* on the Official Index of Rejected and Invalid Works in Zoological Nomenclature. But in response Holthuis (BZN 20: 242, July 1963) noted that 'After examination of the copy of this publication in the Leiden Museum and after consulting the Code and especially Article 8, I cannot see why this book should be considered as not published. It is

reproduced in ink on paper by regular printing, it is issued for the purpose of scientific, public and permanent record, and it was distributed free. In our copy the following citation is written on the fly leaf: '*Le catalogue des Mammifères du Muséum national d'histoire naturelle*, rédigé par Étienne Geoffroy Saint-Hilaire, imprimé en 1803 n'a jamais été mis en vente; mais il a été distribué, tant à l'étranger qu'en France, à un assez grand nombre de zoologistes, et il est cité dans tous les traités de mammalogie. Cf. *Catalogue méthodique de la collection des Mammifères de la collection des oiseaux et des collection annexes* par M. Isidore G. St. Hilaire et M.M. Florent Prévost et Pucheran, Paris, 1851. Introduction V, et note 2'. As the book has been printed, properly distributed and cited in all or practically all important mammological treatises, as is confirmed by our Curator of Mammals, Mr A.M. Husson, I do not see any reason why this book should be unavailable nomenclatorially or even why it should be suppressed. Mr Husson believes that a suppression of this work will cause an undesirably great number of changes in currently adopted names in mammalogy'. Holthuis's views were supported (BZN 20: 245) by Dr E. Raymond Hall (*University of Kansas, Lawrence, Kansas, U.S.A.*) and by Dr Jean Dorst (*Muséum National d'Histoire Naturelle, Paris, France*). In the light of these comments, China (BZN 20: 243) withdrew his request to put the *Catalogue* on the Index (and in March 1971, Opinion 945, the specific name of *Sciurus* (currently *Xerus* or *Euxerus*) *erythropus* for the Sub-Saharan ground squirrel was placed on the Official List with authorship and date attributed to Geoffroy, 1803). Without addressing the 1962–1963 discussion, Harrison (1964, p. 19) cited verbatim the remarks of Ellerman & Morrison-Scott (1951, p. 24) on *Erinaceus aegyptius* Geoffroy, 1803, and its unavailability; and Rosevear (1969) stated that 'There is considerable argument about the availability of Geoffroy's *Catalogue* which is said never to have been properly published and is thus usually regarded as unavailable'. Husson (1978, p. xx) took up its support: 'The arguments brought forward by L.B. Holthuis (1963: 242) to show that Geoffroy's *Catalogue* must be considered published, are fully shared by me, and I see no reason to reject Geoffroy's names, which are widely accepted in zoological literature; quite a number of authors ... do accept Geoffroy's *Catalogue* is available'. Hill (1980) stated that 'Holthuis (1963: 242) has argued convincingly that it fulfils the modern criteria for publication'. Corbet & Hill (1992, p. 439) commented that it 'Has been considered unavailable for nomenclatural purposes but reasons for accepting it were given by Hill (1980)'. The first edition of *Mammals of the world* (Honacki, Kinman & Koepl, 1982) accepted Geoffroy's (1803) *Catalogue* as available, but in the second edition Wilson & Reeder (1993) took the view that it was unavailable, noting that 'a formal proposal to the International Commission on Zoological Nomenclature should be made regarding this matter'. In their review of the 1993 edition Corbet & Hill (1994) noted 'The work of Geoffroy (1803) is specifically discussed and rejected in Appendix I on the basis of several older references, but a more recent case for its retention, summarized by Hill (1980: 287), has been ignored'.

6. Authors who have considered the (1803) *Catalogue* to be unavailable have said that it was never published or its publication is open to doubt; that it is a mere manuscript or known only as proof sheets; that it is part of a manuscript that reached the printed stage; or that it is a printed proof that was distributed to various colleagues: only a few copies were printed which were privately given to friends or

colleagues. These descriptions convey an impression of uncertainty that is not borne out in the following history of the *Catalogue*, a paraphrase of Isidore Geoffroy's (1839, 1847, 1851) accounts, including Hershkovitz's (1955) translation. Étienne Geoffroy commenced work on his *Catalogue* before he went to Egypt in 1798 and continued on his return in 1801. Printing of the *Catalogue* was well advanced when he fell ill and was forced to leave completion, including proof reading, to an older student who apparently was little versed in zoology. On recovery, Geoffroy found serious errors in the text (presumably the final printed version) and abandoned his aim to publish, at first intending to pulp the *Catalogue* ('condamné au pilon'). Geoffroy's friends, Cuvier in particular, saved it from destruction and oblivion ('sauvé par Cuvier de l'oubli') by persuading him to reconsider his intentions. Geoffroy did not agree to complete the outstanding pages on sheep, cattle and cetaceans, nor did he put the work on sale, yet he sent copies to colleagues and naturalists with whom he was in correspondence. The *Catalogue* had been printed, published and distributed in France and abroad, according to Isidore Geoffroy, and was cited in all treatises on mammalogy thereby achieving wide publicity.

7. There is no doubt that Étienne Geoffroy abandoned production of the *Catalogue*. There is also no doubt that multiple copies were printed and circulated. Possibly the whole print-run of partially made-up copies had already been completed when Geoffroy gave up the idea of publishing and spoke of pulping the *Catalogue*. It seems likely that he was persuaded to distribute copies that already existed. Circulation may have been as extensive as for similar material published in the early 19th century when important works in zoology were often supplied only to subscribers. In any case, Geoffroy's *Catalogue* was distributed to many zoologists in France and abroad (para. 5 above). Copies exist in Leiden, Paris, London and Washington and probably elsewhere. It seems inappropriate to call the work a proof or a manuscript when multiple copies were issued even if each one remained incomplete. Too much significance has been placed on contradictory remarks concerning publication. The *Catalogue* did not go through all the conventional stages of publishing, yet by extensive dissemination it became published in accordance with the Code. This is the conclusion that numerous distinguished mammalogists have tacitly adopted (Table 2).

8. Geoffroy's (1803) names refer to long accepted concepts and usages and, as a means of promoting stability in mammalian nomenclature, all the names should be maintained with this authorship. As noted in para. 3 above, the names for a number of the taxa first described by Geoffroy (1803) would be available from later authors (Desmarest, 1804a, 1804b, 1816–1819, 1820–1822, and Fischer, 1829) with their accustomed meanings. The situation is not so simple with those of Geoffroy's names that are not available from subsequent authors, and in these cases rejection of Geoffroy's work would result in a highly undesirable change of name and thus widespread and unnecessary confusion:

- (a) The universally accepted name *Scalopus* Geoffroy, 1803 for the mole of Eastern North America (INSECTIVORA, TALPIDAE, SCALOPINAE) would be replaced by *Scalops* Desmarest, 1804. The name *Scalopus* was wrongly attributed to Desmarest (1804b, p. 14) in Wilson & Reeder (1993, p. 127).
- (b) The widely accepted name *Pteropus rufus* Geoffroy, 1803 for the Madagascan fruit bat (CHIROPTERA, PTEROPIDAE) would be replaced by *P. edwardsii*

É. Geoffroy, 1810. Wilson & Reeder (1993, p. 150) replaced *P. rufus* Geoffroy, 1803 with *P. rufus* Tiedemann, 1808 (p. 535), but this name refers to the Mauritian species and is a junior synonym of *P. niger* Kerr, 1792 (see Andersen, 1912, p. 215).

- (c) The name *Saguinus midas niger* Geoffroy, 1803, which has been in universal usage for the last several decades for the South American black-handed tamarin monkey (Primates, CALLITHRICIDAE), would be replaced by the next available name, *Saguinus ursulus* Hoffmannsegg, 1807. Although currently regarded as a subspecies of *Saguinus midas* (Linnaeus, 1758), *niger* is unambiguously distinct and in a large faunal monograph Voss, Lunde & Simmons (in press) have elevated it to species rank. The junior name *ursulus* Hoffmannsegg has not been used for many years.
- (d) The name *Canis niloticus* Geoffroy, 1803 for the red fox (Carnivora, CANIDAE) from Egypt, Palestine and Libya would be replaced by *C. aegyptiacus*, attributed to either Desmarest or Sonnini (1816) (these authors were responsible for separate parts of the article in which this name was first published, but not every section is initialed so their different contributions cannot be fully identified).
- (e) The widely used name *Felis* (currently *Herpailurus*) *yagouaroundi* Geoffroy, 1803 for the jaguarundi from South and southern North America (Carnivora, FELIDAE) would be replaced by *F. yaguarondi* Lacépède, 1809 (see Wilson & Reeder, 1993, p. 291).
- (f) The widely used name *Mus* (currently *Proechimys*) *guyannensis* Geoffroy, 1803 for the South American spiny rat (Rodentia, ECHIMYIDAE) would be replaced by *Echimyus cayennensis* Desmarest, 1804 (see Wilson & Reeder, 1993, p. 795).

9. It should be noted that the dates of publication commonly cited for certain names used by Desmarest (see paras. 1 and 3 above) are often inaccurate. Desmarest published up to three descriptions of species originally described and named by Geoffroy (1803) (Table 1). The earliest of these has not always been correctly identified or quoted by those who do not accept Geoffroy (1803) as the author: some were small footnote descriptions in Desmarest (1804b). Corrections to Wilson & Reeder (1993) are as follows: *Mimon crenulatum* (Desmarest, 1804b, not É. Geoffroy, 1810); *Arvicanthis niloticus* (Desmarest, 1804, not Desmarest, 1822); *Xerus erythropus* (Desmarest, 1804b, not Desmarest, 1817); *Gerbillus pyramidum* (Desmarest, 1817, not I. Geoffroy, 1825); and *Dasyprocta cristata* (Desmarest, 1804b, not Desmarest, 1816).

10. In 1996 the late Dr Philip Hershkovitz (then Curator Emeritus, Mammals, Field Museum of Natural History, Chicago, U.S.A.) noted that Étienne Geoffroy's (1803) names were available and that many were used as valid for mammal taxa. He submitted an application to place the *Catalogue* on the Official List of Works Approved as Available for Zoological Nomenclature which, however, has not been published. This text covers the aims of the original application. Placement of the *Catalogue* on the List will stabilise the usage of the names published in it, many of which are in wide circulation. It will avoid either the undesirable nomenclatural changes listed in para. 8 above or a number of applications to the Commission for the conservation of individual names.

11. The International Commission on Zoological Nomenclature is accordingly asked:

- (a) to confirm the work by Étienne Geoffroy Saint-Hilaire (1803) entitled *Catalogue des mammifères du Muséum National d'Histoire Naturelle* as available for nomenclatural purposes;
- (b) to place the above work on the Official List of Works Approved as Available for Zoological Nomenclature.

Table 1. Names established in Geoffroy (1803) together with subsequent citations in the literature

Page numbers are from Geoffroy (1803)

The currently accepted name of the taxon is given in square brackets

- P. 13. *Sagouin niger*. 'Sagoin [sic] niger Geoff.' (nomen nudum) in Desmarest (1804b, p. 3). [*Saguinus midas niger*].
- P. 46. *Vespertilio borbonicus*. 'Vespertilio borbonicus Geoff.' in Desmarest (1804b, p. 12); 'Vesp. borbonicus' in É. Geoffroy (1806, p. 201), which was cited by Desmarest (1819, p. 474; 1820, p. 142). [*Scotophilus borbonicus*].
- P. 47. *Pteropus rufus*. [*P. rufus*].
- P. 61. *Phyllostoma crenulata*. 'Phyllos. crenulata Geoff.' in Desmarest (1804b, p. 12); 'Phyllostoma crenulatum' in E. Geoffroy (1810b), which was cited by Desmarest (1818, p. 38; 1820, p. 119). [*Mimon crenulatum*].
- P. 69. *Erinaceus aegyptius*. 'Hérissou d'Égypte, Geoffr.' assigned to synonymy of *E. auritus* by Desmarest (1817, p. 381); 'E[rinaceus] Auritus Pall. . . . Gastraeo flavo-fuscus. E. aegyptius Geoffr. Catal. de la collect. du Mus. Planch. du Dict. des Sc. nat. fasc. 46' in Fischer (1829, p. 262). [*Hemiechinus auritus aegyptius*].
- P. 77. *Scalopus* for *S. cristatus* and *S. virginianus*. 'Scalops, genre de mammifères de l'ordre des Plantigrades, établi par le prof. Cuvier' in Desmarest (1804a, p. 14); 'Scalops Cuv.' in Desmarest (1804b, p.14); 'Scalops [sic], Geoff.' in Desmarest (1819, p. 508); 'Scalops Cuv. Geoff. Illig.' in Desmarest (1820, p. 155). [*Scalopus*].
- P. 113. *Civetta indica*. 'Civetta indica Geoff.' in Desmarest (1804b, p. 17); 'Viverra indica Geoff.' in Desmarest (1817, p. 170); 'Viverra indica Geoff. Collect. du Mus. d'hist. natur.' in Desmarest (1820, p. 210). [*Viverricula indica*].
- P. 124. *Felis yagouarondi*. *Felis yaguarondi* Lacepède, 1809; 'Felis yaguarondi, Lacép.' in Desmarest (1816, p. 113); 'Felis yagouarondi' in Desmarest (1820, p. 230). [*Herpailurus yagouarondi* or *H. yaguarondi*].
- P. 134. *Canis niloticus*. 'Canis egyptius Geoffr.' (nomen nudum) in Desmarest (1804b, p. 18); 'Canis aegyptiacus, Geoff.' in Desmarest [and Sonnini] (1816, p. 524) [name usually attributed to Sonnini]; 'Canis niloticus aut aegyptiacus Geoff. Collect. du Mus.' in Desmarest (1820, p. 204). [*Vulpes vulpes niloticus* or *V. v. aegyptiacus*].
- P. 140. *Phalangista maculata*. 'Phalangista maculata Geoff.' in Desmarest (1818, p. 472); 'Phalangista maculata Geoff. Coll. du Mus.' in Desmarest (1820, p. 261). [*Spilocus maculatus*].
- P. 142. *Didelphis nudicaudata*. 'Didelphis nudicaudata Geoffr.' in Desmarest (1817, p. 424); 'Didelphis nudicaudata Geoff. Collect. du Mus. d'hist. nat.' in Desmarest (1820, p. 257). [*Metachirus nudicaudatus*].
- P. 165. *Cavia cristata*. 'Cavia cristata Geoff.' in Desmarest (1804b, p. 25); 'Cavia cristata, Geoffr.' in Desmarest (1816, p. 213); 'Dasyprocta cristata. Cavia huppé, Geoff. Coll. du Mus.' in Desmarest (1822, p. 358). [*Dasyprocta cristata*].

P. 176. *Sciurus rufiventer*. ‘*Sc. rufiventer* Geoff.’ in Desmarest (1804b, p. 21); ‘*Sciurus rufiventer* Geoff.’ in Desmarest (1817, p. 103); ‘*Sciurus rufiventer* Geoff. Collect. du Mus.’ in Desmarest (1822, p. 333). [*Sciurus niger rufiventer*].

P. 177. *Sciurus pusillus*. ‘*Sc. pusillus* Geof.’ in Desmarest (1804b, p. 21); ‘*Sc. pusillus* Geoffr.’ in Desmarest (1817, p. 109); ‘*Sciurus pusillus* Geof. Coll. Mus.’ in Desmarest (1822, p. 337). [*Sciurillus pusillus*].

P. 178. *Sciurus erythropus* [sic]. ‘*Sc. erithopus* [sic] Geoff.’ in Desmarest (1804b, p. 21); ‘*Sc. erithopus* [sic]’ under the heading of *S. albobittatus* and ‘*Sciurus albobittatus erythropus* [sic]’, ‘*Sciurus rufo flavescens*, *Sc. erythropus* [sic] Geoff., Collect. du Muséum’ in Desmarest (1817, p. 110). [*Xerus*, or *Euxerus*, *erythropus*].

P. 186. *Lemmus albicaudatus*. ‘*Lemmus albicaudatus*. C’est encore M. Geoffroy Saint-Hilaire qui a distingué cette nouvelle espèce’ in Desmarest (1816, p. 81); ‘*Arvicola albicaudatus*. *Lemmus albicaudatus*, Geoffr. Cat. de la coll. du Mus.’ in Desmarest (1822, p. 281). [A senior homonym of *Otomys* (= *Mystromys*) *albicaudatus* A. Smith, 1834?].

P. 186. *Lemmus niloticus*. ‘*Lemmus niloticus* Geof.’ in Desmarest (1804b, p. 23); ‘*Lemmus niloticus* M. Geoffroy donne ce nom à une nouvelle espèce’ in Desmarest (1816, p. 80); ‘*Arvicola niloticus*. *Lemmus niloticus* Geoff. Descript. de l’Egypte’ in Desmarest (1822, p. 281); ‘*Echimys niloticus*’ in É. Geoffroy & Audouin (1829, p. 734). [*Arvicanthis niloticus*].

P. 192. *Mus alexandrinus*. ‘*Mus alexandrinus* Geoffr., Mém. de l’Institut d’Egypte; Hist. nat., pl. 5, fig. 1’ in Desmarest (1819, p. 70); ‘*Mus alexandrinus* Geof. Mém. de l’hist. d’Egypte’ in Desmarest (1822, p. 300); *Mus alexandrinus* in É. Geoffroy & Audouin (1829, p. 733). [*Rattus rattus alexandrinus*].

P. 195. *Mus guyannensis*. ‘*Mus Guyannensis* Geof.’ in Desmarest (1804b, p. 24); ‘*Echimys cayennensis* Geoffr.’ in Desmarest (1817, p. 59); ‘*Echymis* [lapsus for *Echimys*] *cayennensis*. *Echimys cayennensis*, Geoff. — Rat de la Guyane, ejusd. Coll. Mus. *Echimys cayennensis*, Desm. nouv. Dict d’Hist. nat. tom. 10. pag. 58 [sic]’ in Desmarest (1822, p. 292). [*Proechimys guyannensis* or *P. cayennensis*, the latter at first attributed by Desmarest to Geoffroy but then to himself].

P. 195. *Mus cahirinus*. ‘*Mus cahirinus* Geoffr. St.-Hilaire; — *Echimys* d’Egypte, ejusd., Grand ouvrage sur l’Egypt, partie d’hist. nat., pl. 5, fig. 2’ in Desmarest (1819, p. 70); ‘*Mus cahirinus* Geoff., Collect. du Mus. *Echimys* d’Egypte, Ejusd. Mém. de l’Inst. d’Egypte, partie d’Hist. nat. pl. 5, fig. 2’ in Desmarest (1822, p. 309). [*Acomys cahirinus*].

P. 202. *Dipus pyramidum*. ‘*Gebillus* [lapsus for *Gerbillus*] *pyramidum* nob. *dipus* Geoff.’ in Desmarest (1804b, p. 22); ‘*Dipus pyramidum* Geoffr.’ in Desmarest (1817, p. 111; 1822, p. 321), with a description in each publication of the Paris specimen listed under the heading of *Gerbillus aegyptius* = *G. gerbillus* (Olivier, 1800); ‘*Gerbillus pyramidum*’ in I. Geoffroy (1825, p. 321). [*Gerbillus pyramidum*].

P. 213. *Manis crassicaudata*. ‘*M[anis]*. *crassicaudata*’ in Gray (1827, p. 282); ‘*Manis crassicaudata*, Geoff. Cat.’ in synonymy of *Manis indica* in Lesson (1828, p. 13). [*Manis crassicaudata*].

P. 259. *Antilope equina*. ‘*Antilope equina* Geoffr.’ in Desmarest (1804a, p. 4); ‘*Antil. equina* Geoffr.’ in Desmarest (1804b, p. 32); ‘*Antilope equina* Geoffr.’ in Desmarest

(1816, p. 204); '*Antilope equina* Geoffr. Collect. du Mus. — *Antilope equina*, Ejusd.' in Desmarest (1822, p. 476); '*A. equina*, Geoff, Cat. du Muséum' in Desmoulin (1822, p. 436). [*Hippotragus equinus*].

P. 269. *Antilope caama*. '*Antilope caama*' in G. Cuvier (1804, p. 242); '*Antilope caama*' in Desmarest (1816, p. 196); '*Antilope caama*, Schreb. Goldfuss, p. 1174. Tab. 277' in Desmarest (1822, p. 467); '*A. caama* Schreb. 278.' in Desmoulin (1822, p. 444). [*Alcelaphus buselaphus caama*].

Table 2. Usage of Geoffroy's (1803) names in mammal works of reference

Checklists, regional works and systematic papers are cited

Gray (1827): *Didelphis nudicaudatus*, *D. tricolor* (= *D. brachyura* Schreber, 1777), *Phalangista maculata*, *P. alba* (= *P. rufa*), *Setiger variegatus* (= *Centenes semispinosus* (G. Cuvier, 1798)), *Canis decussatus*, *Canis niloticus*, *Viverra indica*, *Felis yagouaroundi*, *Arvicola fulva*, *Mus cahirinus*, *Dipus pyramidum*, *Sciurus rufiventer*, *S. pusillus*, *S. erythropus* (= *S. ginginianus* Shaw, 1801), *Dasyprocta cristata*.

Hamilton Smith (in Gray, 1827): *Cervus coronatus*, *Antilope equina*.

Fischer (1829): *Didelphis nudicaudata*, *D. tricolor*, *Phalangista maculata*, *P. alba* and *P. rufa* (= *P. cavifrons* (Temminck, 1824)), *Myrmecophaga nigra* (= *M. tamandua* (Cuvier, 1817)), *Erinaceus caninus* and *E. suillus* (= *E. europaeus* Linnaeus, 1758), *E. aegyptius* (= *E. auritus* Gmelin, 1770), *Setiger variegatus* (= *Centetes semispinosus* (G. Cuvier, 1798)), *Pteropus stramineus*, *Mustela rufa*, *Canis niloticus*, *C. decussatus*, *Viverra indica*, *Hyaena fusca*, *Cervus coronatus* (= *C. tarandus* Linnaeus, 1758?), *Antilope equina*, *Sciurus erythropus* (= *S. albovittatus* Desmarest, 1817), *S. rufiventer*, *S. pusillus*, *Dipus pyramidum*, *Lemmus fulvus*, *L. albicaudatus*, *Mus cahirinus*, *M. indicus*, *Dasyprocta cristata*.

Thomas (1888): *Didelphis tricolor* (= *D. brevicaudata* (Erxleben, 1777)), *D. nudicaudata*, *Phalangista petaurista* (= *Petauroides volans* (Kerr, 1792)), *Kangurus philander* (= *Macropus brunii* Schreber, 1758).

Trouessart (1897–1898): *Didelphis tricolor* (= *Peramys brevicaudata* (Erxleben, 1777)), *Metachirus nudicaudata*, *Phalanger maculatus*, *Phalangista petaurista* (= *Petauroides volans* Kerr, 1792), *Priodontes giganteus*, *Xerus erythropus* [sic].

Andersen (1912): *Pteropus fuscus* (not of Desmarest, 1803 = *P. niger* Kerr, 1792), *P. rufus*, *P. ruber* (= *P. subniger* Kerr, 1792), *P. pusillus* (= *Cynopterus sphinx* (Vahl, 1797)), *P. stramineus* (= *Eidolon helvum* (Kerr, 1792)).

Miller (1912): *Erinaceus suillus* and *E. caninus* (= *E. europaeus* Linnaeus, 1758), *Castor galliae* (= *C. fiber* Linnaeus, 1758), *Lemmus arvalis* (not of Pallas, 1779 = *Clethrionomys glareolus* (Schreber, 1780)), *L. fulvus* (= *Microtis arvalis* (Pallas, 1779)).

Cabrera (1925): *Erinaceus suillus* and *E. caninus* (= *E. europaeus* Linnaeus, 1758), *Setiger* (= *Hemicentetes*, *Tenrec* and *Setifer* in part), *Setiger variegatus* (= *Hemicentetes semispinosus*), *Scalopus*, *S. virginianus* (= *S. aquaticus* (Linnaeus, 1758)).

Allen (1939): *Pteropus stramineus* (= *Eidolon helvum* (Kerr, 1792)), *P. rufus*, *Euxerus erythropus* [sic].

Setzer (1952): *Vulpes vulpes niloticus*, *Gerbillus pyramidum*, *Acomys cahirinus*.

Cabrera (1958): *Metachirus nudicaudatus*, *Didelphis tricolor* (= *Monodelphis touan* (Shaw, 1800)), *Priodontes giganteus*, *Myrmecophaga nigra* (= *Tamandua tetradactyla* (Linnaeus, 1758)).

Cabrera (1961): *Felis yagouaroundi*, *Proechimys guyannensis*.

Hill (1971): *Pteropus rufus*.

Hershkovitz (1977): *Saguinus midas niger*.

Husson (1978): *Metachirus nudicaudatus*, *Priodontes giganteus*, *Herpailurus yagouaroundi*, *Sciurillus pusillus*, *Proechimys guyannensis*, *Dasyprocta cristata*.

Hill (1980): *Scotophilus borbonicus*.

Hall (1981): *Scalopus*, *S. virginianus* (= *S. aquaticus* (Linnaeus, 1758)), *Sciurus niger rufiventer*, *Pteromys canadensis* (= *Glaucomys sabrinus* (Shaw, 1801)), *Felis yagouaroundi*.

Honacki, Kinman & Koepl (1982): *Scalopus*, *Pteropus rufus*, *Felis yagouaroundi*, *Proechimys guyannensis*.

Eisenberg (1989): *Felis (Herpailurus) yagouaroundi*, *Proechimys guyannensis*.

Bergmans (1990): *Pteropus rufus*.

Corbet & Hill (1991): *Herpailurus yagouaroundi*, *Proechimys guyannensis*.

Corbet & Hill (1992): *Spiloglossus maculatus*, *Pteropus pusillus* (= *Cynopterus sphinx* (Vahl, 1797)).

Redford & Eisenberg (1992): *Felis yagouaroundi*.

Julien-Leferrière (1994): *Metachirus nudicaudatus*, *Didelphis tricolor* (= *Monodelphis breviceaudata* (Erxleben, 1777)), *Kangurus philander* (= *Wallabia bicolor* (Desmarest, 1803)).

Grubb et al. (1998): *Pteropus stramineus* (= *Eidolon helvum* (Kerr, 1792)), *Xerus erythropus*, *Arvicanthis niloticus*.

Eisenberg & Redford (1999): *Felis (Herpailurus) yagouaroundi*, *Proechimys guyannensis*.

References

- Andersen, K.** 1912. *Catalogue of the Chiroptera in the collection of the British Museum*. Ed. 2, vol. 1 (Megachiroptera). ci, 854 pp. British Museum, London.
- Bergmans, W.** 1990. Taxonomy and biogeography of African fruit bats (Mammalia, Megachiroptera). 3. The genera *Scotonycteris* Matschie, 1894, *Cassinycteris* Thomas, 1910, *Pteropus* Brisson, 1762, and *Eidolon* Rafinesque, 1815. *Beaufortia*, **40**: 111–177.
- Cabrera, A.** 1925. *Genera Mammalium. Insectivora. Galeopithecina*. 232 pp. Museo Nacional de Ciencias Naturales, Madrid.
- Cabrera, A.** 1957, 1961. Catalogo de los mamiferos de America del Sur. *Revista del Museo Argentino de Ciencias Naturales 'Bernardino Rivadavia'*, *Ciencias Zoológicas*, **4**: 1–397, 309–732.
- Corbet, G.B. & Hill, J.E.** 1991. *A world list of mammalian species*, Ed. 3. viii, 243 pp. Natural History Museum, London.
- Corbet, G.B. & Hill, J.E.** 1992. *The mammals of the Indomalayan Region: a systematic review*. 488 pp. Natural History Museum, London.
- Corbet, G.B. & Hill, J.E.** 1994. Review: Wilson, D.E. and D.M. Reeder (eds.). 1993. *Mammal species of the world; a taxonomic and geographic reference*, 2nd Edition. The view from the Old World. *Journal of Mammalogy*, **75**: 239–243.
- Cuvier, G.** 1804. Antilope. Pp. 223–252 in: *Dictionnaire des sciences naturelles*, vol. 2. Levrault, Strasbourg.
- Desmarest, A.** 1803. Kangaroo ou Kangourou (*Kangurus*). Pp. 354–358 in: *Nouveau dictionnaire d'histoire naturelle*, vol. 12. Déterville, Paris.

- Desmarest, A.** 1804a. Antilope ozanne (*Antilope equina* Geoffr.); Scalops in Addition d'articles connus pendant l'impression de ce dictionnaire. Pp. 1–32 in: *Nouveau dictionnaire d'histoire naturelle*, vol. 24, part 1. Déterville, Paris.
- Desmarest, A.** 1804b. Tableau méthodique des mammifères. Pp. 5–38 in: *Nouveau dictionnaire d'histoire naturelle*, vol. 24, part 4. Déterville, Paris.
- Desmarest, A.** 1816–1819. Articles in *Nouveau dictionnaire d'histoire naturelle*. Nouvelle Edition, vols. 1–35. Déterville, Paris.
- Desmarest, A.** 1820, 1822. *Encyclopédie méthodique. Mammalogie ou description des espèces de mammifères*. 555 pp. Agasse, Paris.
- Desmoulins, A.** 1822. Antilope. Pp. 436–448 in: *Dictionnaire classique d'histoire naturelle*, vol. 1. Ray & Gravier, Baudenon Frères, Paris.
- Eisenberg, J.F.** 1989. *Mammals of the Neotropics*, vol. 1 (The northern Neotropics). x, 449 pp. University of Chicago Press, Chicago.
- Eisenberg, J.F. & Redford, K.H.** 1999. *Mammals of the Neotropics*, vol. 3 (The Central Neotropics). x, 609 pp. University of Chicago Press, Chicago.
- Ellerman, J.R. & Morrison-Scott, T.C.S.** 1951. *Checklist of Palaearctic and Indian mammals 1758 to 1946*. 810 pp. British Museum, London.
- Ellerman, J.R. & Morrison-Scott, T.C.S.** 1954. *Ictonyx* Kaup, 1835, the correct generic name, and *Ictonyx striatus* (Perry), 1810, the correct specific name for the African stinkmuishond. *Journal of Mammalogy*, **35**: 130–131.
- Fischer, J.B.** 1829. *Synopsis mammalium*. xlii, 527 pp. Gotta, Stuttgart.
- Geoffroy Saint-Hilaire, É.** 1803. *Catalogue des mammifères du Muséum National d'Histoire Naturelle*. 272 pp. Paris.
- Geoffroy Saint-Hilaire, É.** 1806. Memoire sur le genre et les espèces de Vespertilion, l'un des genres de la famille des chauve souris. *Annals du Muséum d'Histoire Naturelle*, **8**: 187–205.
- Geoffroy Saint-Hilaire, É.** 1810a. Description des roussettes et des cephalotes, deux nouveaux genres de la famille des chauve-souris. *Annals du Muséum d'Histoire Naturelle*, **15**: 86–108.
- Geoffroy Saint-Hilaire, É.** 1810b. Sur les phyllostomes et les mégadermes, deux genres de la famille des chauve-souris. *Annals du Muséum d'Histoire Naturelle*, **15**: 157–198.
- Geoffroy Saint-Hilaire, É. & Audouin, A.** 1829. Description des mammifères qui se trouvent en Égypt. Part 3 (Du rat d'Alexandrie, *Mus alexandrinus*); part 4 (De l'échimis du Nil, *Echimys niloticus*). In Savigny, J.-C. (Ed.), *Description de l'Égypte. Histoire naturelle*, vol. 2. 752 pp. Imprimerie Impériale, Paris.
- Geoffroy Saint-Hilaire, I.** 1825. Gerboise. Pp. 317–324 in: *Dictionnaire classique d'histoire naturelle*, vol. 7. Ray & Gravier, Paris.
- Geoffroy Saint-Hilaire, I.** 1839. *Tanrec*. Cuv. *Centetes*. Illig. et Éricule. *Ericulus*. Is. Geoff. *Magazin de Zoologie d'Anatomie Comparée et de Palaeontologie*, (2)**1**(Classe Mammifères): 1–37.
- Geoffroy Saint-Hilaire, I.** 1847. *Vie, travaux et doctrine scientifique d'Étienne Geoffroy Saint-Hilaire*. 479 pp. Librairie de la Société Géologique de France, Paris.
- Geoffroy Saint-Hilaire, I.** 1851. Introduction. Pp. i–xv in Geoffroy, I., Prevost, F. & Pucheran, (J.), *Catalogue méthodique de la collection des mammifères de la collection des oiseaux et des collections annexes*, Première partie (Mammifères). Gide & Baudry, Paris.
- Gray, J.E.** 1827. A synopsis of the species of the class Mammalia. In Griffith, E., Hamilton Smith, C. & Pidgeon, E., *The animal kingdom arranged in conformity with its organization, by the Baron Cuvier*, vol. 5. 391 pp. Whitaker, London.
- Grubb, P., Jones, T.S., Davies, A.G., Edberg, E., Starin, E.D. & Hill, J.E.** 1998. *Mammals of Ghana, Sierra Leone and The Gambia*. vi, 265 pp. Trendrine Press, Zennor, St Ives, U.K.
- Hall, E.R.** 1981. *The mammals of North America*, Ed 2. Pp. xiv, 600, 90 (vol. 1); pp. 601–1181, 90 (vol. 2). Wiley, New York.
- Harrison, D.L.** 1964. *The mammals of Arabia*, vol. 1. Pp. 1–192. Benn, London.
- Hershkovitz, P.** 1955. Status of the generic name *Zorilla* (Mammalia): nomenclature by rule or by caprice. *Proceedings of the Biological Society of Washington*, **68**: 185–192.
- Hershkovitz, P.** 1977. *Living New World monkeys*, part 1 (Platyrrhini), with an introduction to Primates. xiv, 1117 pp. Chicago University Press, Chicago.

- Hill, J.E. 1971. The bats of Aldabra Atoll, western Indian Ocean. *Philosophical Transactions of the Royal Society of London*, (B. Biological Sciences) **260**: 573–576.
- Hill, J.E. 1980. The status of *Vespertilio borbonicus* É. Geoffroy, 1803 (Chiroptera: Vespertilionidae). *Zoologische Mededelingen*, **55**: 287–295.
- Honacki, J.H., Kinman, K.E. & Koepl, J.W. (Eds.). 1982. *Mammal species of the world*. ix, 694 pp. Allen Press, Lawrence, Kansas.
- Husson, A.M. 1978. *The mammals of Suriname*. xxxiv, 569 pp., 161 pls. Brill, Leiden.
- Julien-Laferrrière, D. 1994. Catalogue des types de marsupiaux (Marsupialia) du Muséum National d'Histoire Naturelle, Paris. *Mammalia*, **58**: 1–39.
- Laurie, E.M.O. & Hill, J.E. 1954. *List of the land mammals of New Guinea, Celebes and adjacent islands 1758–1952*. 175 pp., 3 pls. British Museum (Natural History), London.
- Lesson, R.P. 1828. Pangolin. *Manis*. Mam. Pp. 13–14 in: *Dictionnaire classique d'histoire naturelle*, vol. 13. Ray & Gravier, Paris.
- Miller, G.S. 1912. *Catalogue of the mammals of Western Europe*. xv, 1019 pp. British Museum, London.
- Pocock, R.I. 1939. *The fauna of British India, including Ceylon and Burma*. *Mammalia*, vol. 1 (Primates and Carnivora, in part). 463 pp. Taylor & Francis, London.
- Redford, K.H. & Eisenberg, J.F. 1992. *Mammals of the Neotropics*, vol. 2 (The southern cone). 430 pp. University of Chicago Press, Chicago.
- Rosevear, D.R. 1969. *The rodents of West Africa*. xii, 604 pp. British Museum (Natural History), London.
- Setzer, H.W. 1952. Notes on mammals from the Nile Delta region, Egypt. *Proceedings of the United States National Museum*, **102**: 343–369.
- Sherborn, C.D. 1922. *Index animalium*, part 1. cxxi, 123 pp. British Museum (Natural History), London.
- Tiedemann, D.F. 1808. *Zoologie*, vol. 1 (Allgemeine Zoologie, Mensch und Säugthiere). xvi, 610 pp. Landshut.
- Thomas, O. 1888. *Catalogue of the marsupials and monotremes in the collection of the British Museum (Natural History)*. xiii, 401 pp. British Museum, London.
- Trouessart, E.-L. 1897–1898. *Catalogus mammalium tam viventium quam fossilium*. 1469 pp. Friedlander, Berlin.
- Voss, R.S., Lunde, D.P. & Simmons, N.B. In press. Mammals of Paracou, French Guiana: a neotropical lowland rainforest fauna. Part 2. Nonvolant species. *Bulletin of the American Museum of Natural History*. 400 pp.
- Wilson, D.E. & Reeder, D.M. 1993. *Mammal species of the world. A taxonomic and geographic reference*, Ed. 2. xviii, 1206 pp. Smithsonian Institution Press, Washington D.C.

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).

Comments on the proposed conservation of *Trichia* Hartmann, 1840 (Mollusca, Gastropoda), and the proposed emendation of spelling of TRICHIINAE Ložek, 1956 (Mollusca) to TRICHIAINAE, so removing the homonymy with TRICHIIDAE Fleming, 1821 (Insecta, Coleoptera)

(Case 2926; see BZN 57: 17–23, 109–110, 166–167)

(1) D. Kadolsky

'The Limes', 66 Heathhurst Road, Sanderstead, South Croydon CR2 0BA, U.K.

I fully support the comment by Prof L.B. Holthuis (BZN 57: 109–110) not to invoke the Commission's plenary power to save the least deserving of the names involved in this case, *Trichia* Hartmann, 1840 and TRICHIINAE Ložek, 1956, used in Mollusca. In addition to the reasons given by Holthuis, with all of which I agree, I object particularly to the request to the Commission 'to rule that the name *Trichia* Hartmann is not rendered invalid by the existence of *Trichia* von Haller, 1768 in Myxomycetes'. This would set a dangerous precedent, as the argument that confusion with an animal name is unlikely could be applied to many, and possibly the vast majority of, ambiregnal names. If this homonymy is deemed acceptable, the question may be asked why ambiregnal names are included within the scope of zoological nomenclature. Furthermore, acceptance of this argument could lead in the future to its extension to cases of homonymy between animal names if there is a low probability that they may be quoted together in the same context.

If the principle of homonymy is maintained (as it certainly should be), *Trichia* Hartmann, 1840 and *Trichia* de Haan, 1839 become invalid, as well as the family-group names based on these genera. Consequently, use of the plenary power need not be invoked to deal with any aspect of the application. If the Commission followed this route, Gittenberger's work would not have been 'in vain' (see BZN 57: 167) as it was necessary to submit this complex and seemingly controversial case in order to achieve nomenclatural stability, whichever way the ruling may eventually go.

I admit that *Trichia* Hartmann is an often used name for a group of common land snails. However, its use has not been established for very long, as Holthuis has correctly pointed out. The synonymy of *Trichia* Hartmann, *Trochulus* Alten, 1812 and *Erethismus* Gistel, 1848 is well known in the literature (see, for example, Zilch, 1960). In my own records I have used all three names, depending on changing assessments of the nomenclatural situation. The preservation of the principle of homonymy, in addition to priority, should be more important than the convenience of malacologists, who continuously experience other name changes for taxonomic reasons.

The homonymy of the family-group names TRICHIIDAE Fries, 1821 (published as Trichocisti; type genus *Trichia* von Haller, 1768, Myxomycetes) and TRICHIIDAE Fleming, 1821 (type genus *Trichius* Fabricius, 1775, Coleoptera) should be addressed, as Gittenberger et al. (BZN 57: 166–167) have already noted. Both names are in frequent use. I recommend that the Commission rule that the stem of the coleopteran family be TRICHIUS-, giving the family name TRICHIUSIDAE.

(2) F.-T. Krell

*Department of Entomology, The Natural History Museum, Cromwell Road,
London SW7 5BD, U.K.*

I strongly support the application by Gittenberger (published in *BZN* 57: 17–23, March 2000), and in particular the conservation of the scarab beetle family name TRICHIIDAE Fleming, 1821 (usually cited as the subfamily TRICHIINAE or tribe TRICHIINI in the family SCARABAEIDAE) by disregarding the slime mould names *Trichia* von Haller, 1768 and TRICHIIDAE Fries, 1821 for the purposes of homonymy in zoological nomenclature.

Ádám (1994, p. 10) attributed the scarab family-group name TRICHIINAE to Gmelin (1790) but, in fact, Fleming (1821) was the first author to use a family-group name derived from the genus *Trichius* Fabricius, 1775. Gmelin (1790, p. 1583) and later Latreille (1802, p. 154) used the plural form of *Trichius*, ‘Trichii’, to unite a subgroup of the genus *Scarabaeus* Linnaeus and of the genus *Cetonia* Fabricius respectively. Under Article 11.7.1.2 of the Code ‘Trichii’ is not an available family-group name.

The family-group names TRICHIIDAE Fleming, 1821 (Coleoptera) and ‘Trichocisti’ Fries, 1821 (Myxomycetes) have been recorded as published in the same year (paras. 9 and 10 of the application). However, Fries was not the original author of the name. He cited Nees von Esenbeck who introduced ‘Trichocisti’ on p. 110 of his *Ueberblick des Systems der Pilze und der Schwämme* in 1816. If the names are treated as homonyms under the zoological Code, TRICHIINAE Fleming, 1821 (Coleoptera) is junior to Trichiaceae (or TRICHIIDAE) Nees von Esenbeck, 1816 (Myxomycetes).

The crucial point in Prof Holthuis’s contribution (*BZN* 57: 109) is that he would bring slime mould names into homonymy with zoological names. Holthuis, followed by Rosenberg (*BZN* 57: 225), called the Myxomycetes an ‘ambiregnal group of organisms’. He adopted this term from Corliss (*BZN* 52: 11–17). Originally Patterson (1986, p. 87) created it in combination with the word taxonomy as a descriptive term for a practical procedure: ‘ambiregnal taxonomy’ treats ‘taxa that fall under the jurisdiction of more than one code of nomenclature’. Then Corliss declared the organisms themselves to be ambiregnal (‘the ambiregnal protists’).

Current phylogenetical analyses of the basal evolution of living organisms clearly show that the slime moulds in the traditional sense are probably polyphyletic and that the taxa formerly subsumed under the slime moulds (see Bresinsky, 1983, pp. 630ff; Lim, 1998, p. 369) do not form part of the Animalia, the Plantae or the Fungi (see Schlegel, 1994; Sogin et al., 1996; Baldauf & Doolittle, 1997; Baldauf, 1999). This distinctness is widely accepted in common text books (see Madigan et al., 1997, p. 778; Lim, 1998, p. 312). However, slime moulds are often still included in a paraphyletic ‘regnum Protista’ or a ‘kingdom Protozoa’ (possibly making it polyphyletic; see Baldauf, 1999) for practical or traditional reasons or because the authors are simply ignorant or agnostic (see Cavalier-Smith, 1998) to the classificatory consequences of phylogenetic evidence.

There is no clear scientific reason for treating the slime moulds as either ‘animals’ or ‘plants’. To minimize nomenclatural confusion and to maximize nomenclatural stability I strongly suggest that research traditions are followed in each case in deciding under which Code or Codes the nomenclature of such a group should fall.

The 'slime moulds' are already explicitly covered by the *International Code of Botanical Nomenclature* (Saint Louis Code) (see Greuter et al., 2000, p. 2).

There is a long argument between zoological and botanical textbook writers as to which domain the slime moulds belong. As a result they are generally included in both although there is some bias for botanical publications. There are zoology textbooks from which the slime moulds are explicitly excluded (see, for example, Grassé et al., 1970, p. 40: 'Nous ne traiterons pas des Mycétozoaires (ou Mycomycètes) qui, en dépit de leurs affinités animales, sont réservés aux Botanistes'), but I have seen no botany textbook from which this group is missing. As Rosenberg has indicated (BZN 57: 225–226), many myxomycete names are included in S.A. Neave's *Nomenclator Zoologicus* and in *Zoological Record*. In this particular case, primary research publications must be consulted to decide how to minimize nomenclatural confusion: has the slime mould genus *Trichia* von Haller, 1768 and family-group name TRICHIIDAE (or Trichiaceae) Nees von Esenbeck, 1816 been claimed by both mycologists and (proto)zoologists as Holthuis stated?

A search of the literature cited by BIOSIS Previews (*Biological Abstracts* 1970 — present) gave the following results: 167 papers using the name *Trichia* were found, 93 of them on the slime mould genus, 71 on the snail genus and three on the crab genus. Of the 93 slime mould papers, 27 were published in botanical journals, 31 in mycological journals, 33 in general journals, one in a microbiological journal, and only one paper has been published in a 'protozoological' journal (Demaree & Kowalski, 1975) although even here the authors used botanical nomenclature (Trichiaceae). None of these papers has been published in a zoological journal. Addresses of 65 of the authors of the 93 papers were given; of these, 35 authors came from botanical departments, one from a medical mycological department, one from a microbiological department, and 28 from general biological departments or from private addresses. No paper emerged from a zoological institution.

There is no doubt that the taxonomy and systematics of the Trichiaceae and slime moulds in general are traditionally studied by mycologists (para. 10 of the application). Mycology has traditionally been, and will be, studied in botany departments, although the fungi no longer belong to the plants (and the slime moulds no longer belong to the fungi). In this particular case, to treat the Trichiaceae under the jurisdiction of the zoological Code would be a novel and confusing experience for all taxonomists working on this group (Blackwell & Powell, 1999, p. 409, for example, noted that 'slime molds ... traditionally viewed as Fungi but now known to be Protozoa ... are still treated nomenclaturally by the botanical Code'). I contend that the nomenclatural changes because of 'homonymy' between myxomycete and zoological names, set out by Rosenberg (BZN 57: 226), were in response to a theoretical, rather than an actual, problem and probably created much greater difficulties.

Thus, the formal assignment of artificially defined groups like 'Protista' to any one of the nomenclatural Codes (Cavalier-Smith, 1998, p. 203) has no scientific basis and no justification by common usage. If the slime moulds are treated as being under the aegis of the zoological Code, traditionally botanical names would interfere with zoological ones causing much confusion and instability, as already noted by Gittenberger (BZN 57: 226). *Trichia* von Haller, 1768 and the family-group name Trichiaceae (or TRICHIIDAE) Nees von Esenbeck, 1816 are not to be considered zoological names.

Additional references

- Ádám, L.** 1994. A check-list of the Hungarian Scarabaeoidea with the description of ten new taxa (Coleoptera). *Folia Entomologica Hungarica*, **55**: 5–17.
- Baldauf, S.L.** 1999. A search for the origins of animals and fungi: comparing and combining molecular data. *American Zoologist*, **154**: S178–S188.
- Baldauf, S.L. & Doolittle, W.F.** 1997. Origin and evolution of the slime molds (Mycetozoa). *Proceedings of the National Academy of Science U.S.A.*, **94**: 12007–12012.
- Blackwell, W.H. & Powell, M.J.** 1999. Reconciling Kingdoms with Codes of nomenclature: is it necessary? *Systematic Biology*, **48**: 406–412.
- Bresinsky, A.** 1983. [Niedere Pflanzen]. Pp. 531–757 in Denffer, D. von, Ziegler, H., Ehrendorfer, F. & Bresinsky, A., *Lehrbuch der Botanik für Hochschulen*, Ed. 32. Fischer, Stuttgart.
- Cavalier-Smith, T.** 1998. A revised six-kingdom system of life. *Biological Reviews of the Cambridge Philosophical Society*, **73**: 203–266.
- Demaree, R.S. & Kowalski, D.T.** 1975. Fine structure of five species of Myxomycetes with clustered spores. *Journal of Protozoology*, **22**: 85–88.
- Gmelin, J.F.** 1790. *Caroli a Linné Systema Naturae*, Ed. 13, vol. 1, part 4. Pp. 1517–2224. Lipsiae.
- Grassé, P.-P., Poisson, R.A. & Tuzet, O.** 1970. *Précis de zoologie*, vol. 1 (Invertébrés). 936 pp. Masson, Paris.
- Greuter, W., McNeill, J., Barrie, F.R., Burdet, H.M., Demoulin, V., Filgueiras, T.S., Nicolson, D.H., Silva, P.C., Skog, J.E., Trehane, P., Turland, N.J. & Hawksworth, D.L.** (Eds.). 2000. International Code of Botanical Nomenclature (Saint Louis Code) adopted by the Sixteenth International Botanical Congress, St Louis, Missouri, July–August 1999. *Regnum Vegetabile*, vol. 138. 474 pp.
- Latreille, P.A.** 1802. *Histoire naturelle, générale et particulière des crustacés et des insectes*, vol. 3. xii, 467 pp. Dufart, Paris.
- Lim, D.** 1998. *Microbiology*, Ed. 2. xxii, 720 pp. McGraw Hill, Boston.
- Madigan, M.T., Martinko, J.M. & Parker, J.** 1997. *Brock. Biology of microorganisms*, Ed. 8. xviii, 986 pp. Prentice Hall, Upper Saddle River.
- Nees von Esenbeck, [C.G.]** 1816. *Ueberblick des Systems der Pilze und Schwämme*. xxxvi, 234 pp., 1 pl. Stahelsche Buchhandlung, Würzburg.
- Patterson, D.J.** 1986. Some problems of ambireginal taxonomy and a possible solution. Pp. 87–91 in Bereczky, M.C. (Ed.), *Advances in protozoological research*. (Symposia Biologica Hungarica, **33**). Akadémiai Kiadó, Budapest.
- Schlegel, M.** 1994. Molecular phylogeny of eukaryotes. *Trends in Ecology and Evolution*, **9**: 330–335.
- Sogin, M.L., Silberman, J.D., Hinkle, G. & Morrison, H.G.** 1996. Problems with molecular diversity in the Eukarya. Pp. 167–184 in Roberts, D.M., Sharp, P., Alderson, G. & Collins, M.A. (Eds.), *Evolution of microbial life*. Cambridge University Press, Cambridge.

Comment on the proposed conservation of *Hydrobia* Hartmann, 1821 (Mollusca, Gastropoda) and *Cyclostoma acutum* Draparnaud, 1805 (currently *Hydrobia acuta*) by the replacement of the lectotype of *H. acuta* with a neotype; proposed designation of *Turbo ventrosus* Montagu, 1803 as the type species of *Ventrosia* Radoman, 1977; and proposed emendation of spelling of HYDROBIINA Mulsant, 1844 (Insecta, Coleoptera) to HYDROBIUSINA, so removing the homonymy with HYDROBIIDAE Troschel, 1857 (Mollusca)

(Case 3087; see BZN **55**: 139–145; **56**: 56–63, 143–148, 187–190, 268–270)

Dietrich Kadolsky

'The Limes', 66 Heathurst Road, Sanderstead, South Croydon CR2 0BA, U.K.

In addition to my support and previous comments on this application, which were published in BZN **56**: 62–63 (March 1999), I should like to make the following observations.

In their application, Giusti et al. (BZN 55: 139–145, September 1998) claimed incorrectly that *Turbo ventrosus* Montagu, 1803 ‘was proposed in synonymy’, as Boeters et al. (BZN 56: 59) have subsequently pointed out. However, neither these groups of authors nor any other commentator has described or commented on the circumstances surrounding the introduction of the name.

Montagu (1803, pp. 317–318, pl. 12, fig. 13) described and figured the nominal taxon *Turbo ventrosus* on the basis of his own material, from which Bank, Butot & Gittenberger (1979) selected a lectotype (para. 6 of the application). However, Montagu included as a synonym the nominal species *Turbo eburneus* Jacob in Adams & Kanmacher, 1798 (p. 637, pl. 14, fig. 15). In his comments, Montagu made clear that he thought *eburneus* (= ivory-like) was an inappropriate name: ‘This shell retains the greater part of its black colour when preserved with the animal in; but dead specimens are opaque white, as Mr Walker describes it; and it was probably the only state in which Mr Jacobs had ever seen it, by giving it the name of *eburneus* (as Mr Adams informs us)’. Thus, *T. ventrosus* was introduced as a replacement name for *T. eburneus*, and consequently the name-bearing type of *T. ventrosus* is the type of *T. eburneus* (Article 72.7 of the Code). As Montagu’s syntypes in the Natural History Museum, London, were not part of the type material of *T. eburneus*, Bank et al.’s (1979) lectotype designation for *T. ventrosus* is invalid and confirmation of the designation is required under the plenary power.

The name *Turbo eburneus* was published in the posthumous second edition of G. Adams’s *Essays on the microscope* in Chapter 11, which was inserted by the editor, F. Kanmacher. The descriptions of mollusk, foraminifera and ostracod shells in this chapter, as well as their illustrations on pl. 14, were copied from a booklet by Boys & Walker (1784). Binominal names were not used in the latter and in Opinion 558 (1959) the work was placed on the Official Index. The binominal names were added to the publication of G. Adams & Kanmacher by E. Jacob in 1798 (p. 633, footnote) and their authorship should be attributed to Jacob.

The type material of *Turbo eburneus* is that originally studied by Boys & Walker (1784) and by Jacob. Jacob was acquainted with Boys & Walker (1784, Introduction, pp. i, ii) and he may have seen their material and/or exchanged specimens. Some specimens studied by Boys & Walker were donated to the Dowager Duchess of Portland but the present location of any of these collections is not known.

The name *Turbo eburneus* has been almost completely ignored by subsequent workers. Of the significant 19th century revisions of the British mollusk faunas by Forbes & Hanley (1850–1853) and Jeffreys (1862), only the former mentioned in a supplement (1853, p. 266) the synonymy given by Montagu (1803) as ‘probable’. The name *eburneus* has not been used during the last century and the application of Article 23.9.1 is appropriate (i.e. *T. ventrosus* should take precedence).

In their application, Giusti et al. (BZN 55: 139–145) requested the Commission to use its plenary power ‘to set aside all previous type fixations for the nominal genus *Ventrosia* Radoman, 1977 and to designate *Turbo ventrosus* Montagu, 1803 as the type species’. Under the 4th edition of the Code, which came into force after the application was published, a revising author can resolve the problem of a misidentified type species without recourse to the the Commission (Article 70.3). It is my belief that Radoman (1977) actually intended to designate *T. ventrosus* as the type species of *Ventrosia* and only erroneously used what he considered to be the senior

name, *Helix stagnorum* Gmelin, 1791. His choice of the older name was an attempt to define this nominal taxon which up to then was poorly understood. He did not fix a type specimen for *H. stagnorum*, however, and his species concept was legitimately overturned by the actions of Bank et al. (1979) in designating a neotype in such a way that the name became applicable to a species which up to then had not been recognized as existing in north-west Europe. At the time of Radoman's (1977) paper, *H. stagnorum* was generally considered to be a senior synonym of *T. ventrosus*, based on the statements of Dollfus (1912) who examined shells from the type locality of *H. stagnorum* but did not recognize the presence of both species there. Consequently, it is clear from Radoman's (1977) own synonymy and description, and the discussion given by Bank et al. (1979) on the effects of their neotype designation, that Radoman misidentified *H. stagnorum*.

In addition to the provisions in the application, I propose that the International Commission be asked:

to use its plenary power to set aside all previous fixations of type specimen for the nominal species *ventrosus* Montagu, 1803, as published in the binomen *Turbo ventrosus*, prior to the lectotype designation by Bank, Butot & Gittenberger (1979).

Additional references

- Adams, G. & Kanmacher, F.** 1798. *Essays on the microscope; containing a practical description of the most improved microscopes; a general history of insects, their transformations, peculiar habits, and oeconomy; an account of the various species, and singular properties, of the Hydrae and Vorticellae; a description of three hundred and seventy nine animalcula. Second edition, with considerable additions and improvements by Frederick Kanmacher.* xvii, [vi], 724 pp., 33 pls. London.
- Boys, W. & Walker, G.** 1784. *Testacea minuta rariora, nuperrime detecta in arena littoris Sandvicensis a Gul. Boys . . . Multa didit, et omnium figuras ope microscopii ampliatas accurate delineavit Geo. Walker. A collection of the minute and rare shells lately discovered in the sand of the sea shore near Sandwich by William Boys . . . Considerably augmented, and all their figures accurately drawn as magnified with the microscope, by Geo. Walker.* v, 25 pp., 3 pls. London.
- Forbes, E. & Hanley, S.** 1853. *A history of British Mollusca and their shells*, vol. 4. 301 pp., 133 pls. London.

Comment on the proposed designation of *Buprestis nitida* Rossi, 1792 (currently *Anthaxia fulgurans* (Schränk, 1789)) as the type species of *Anthaxia* Eschscholtz, 1829 (Insecta, Coleoptera)

(Case 3118; see BZN 57: 97–99, 227)

Hans Mühle

Hofangerstr. 22a, D-817535 München, Germany

I strongly support Svatopluk Bílý's application to designate *Buprestis nitida* Rossi, 1792 as the type species of *Anthaxia* Eschscholtz, 1829: acceptance of any other of the originally included species as the type would lead to great problems in the taxonomy and nomenclature of *Anthaxia*.

Comments on the proposed conservation of the name *Crotophytus vestigium* Smith & Tanner, 1972 (Reptilia, Squamata)

(Case 3136; see BZN 57: 158–161)

(1) Jay M. Savage

Department of Biology, San Diego State University, San Diego, California 92182–4614, U.S.A.

I write to oppose the conservation of the name *Crotophytus vestigium* Smith & Tanner, 1972, a junior subjective synonym of *C. fasciolatus* Mocquard, 1903. The names involved do not apply to a species important in medicine, physiology or other biological disciplines. The species is not rare, endangered or threatened, so the name *C. vestigium* is not entrenched in law.

Under these circumstances to conserve *C. vestigium* rewards failure by its describers to check a major publication on herpetology of Baja California (Mocquard, 1899) and the synonymy and comments of Schmidt (1922) and Burt (1928). The best solution to this case is to retain the name *fasciolatus* as valid while recognizing *vestigium* as potentially valid should the two taxa be regarded as distinct.

I therefore ask the Commission on Zoological Nomenclature:

- (1) to vote against the proposals in this case;
- (2) to place on the Official List of Specific Names in Zoology the name *fasciolatus* Mocquard, 1903, as published in the binomen *Crotophytus fasciolatus*;
- (3) to place on the Official Index of Rejected and Invalid Specific Names in Zoology the name *fasciatus* Mocquard, 1899 (a junior primary homonym of *Crotophytus fasciatus* Hallowell, 1853).

(2) J.A. McGuire

Division of Natural Sciences, 119 Foster Hall, Louisiana State University, Baton Rouge, Louisiana 70803, U.S.A.

I write in reply to Jay Savage, who (above) has opposed my application for the conservation of the name *Crotaphytus vestigium* Smith & Tanner, 1972, a junior subjective synonym of *C. fasciolatus* Mocquard, 1903.

The name *Crotaphytus vestigium* was used in the second edition of the Peterson *Field guide to western reptiles and amphibians* (Stebbins, 1985) and in my own monographic revision of the CROTOPHYTIDAE (McGuire, 1996), as well as in at least 17 additional publications. The names *C. fasciatus* Mocquard, 1899 and (the replacement) *C. fasciolatus*, on the other hand, have been considered as junior synonyms of *Gambelia wizlizenii* (Baird & Girard, 1852) by virtually all authors for nearly 100 years, and they have never been used for their intended species subsequent to their original publications.

Article 81 of the Code states that the Commission may use its plenary power to suppress a name if failure to do so would in its judgement 'disturb stability or universality or cause confusion'. Although it is true that *C. vestigium* has no current medicinal importance and is not a model system in physiological studies (as noted by Savage), it is no less true that the name has been in use for nearly 30 years by the

scientific community and has been before thousands of amateur and professional naturalists since the publication of the field guide (mentioned above) in 1985. Adoption of the name *fasciolatus* would reduce taxonomic stability because the name is completely unfamiliar to the herpetological community, and because the name *vestigium* will continue to be associated with its use in the (1985) Peterson field guide and in the (1966) primary monographic work on the CROTOPHYTIDAE.

The intention of the Code is to maximize stability and promote the utility of our taxonomies (and not to reward or punish our colleagues, as suggested by Savage), and conservation of the name *vestigium* is appropriate. Therefore I request that the Commission suppress the name *fasciolatus* in favor of *vestigium*, as sought in my application.

(3) Richard Etheridge

*Department of Biology, San Diego State University, San Diego,
California 92182-4616, U.S.A.*

I wish to support the conservation of the name *Crotaphytus vestigium* Smith & Tanner, 1972, a junior subjective synonym of *C. fasciolatus* Mocquard, 1903, as proposed by J.A. McGuire. The species is well known to naturalists in southern California and throughout most of the Mexican peninsula of Baja California. The name has been used in numerous publications, including R.C. Stebbins' (1985) *Field guide to western reptiles and amphibians*, which has been in the hands of students, teachers and amateur naturalists for the past 15 years. It has also been used in the 1995 reprint of H.M. Smith's (1946) *Handbook of lizards*.

It is the function of the Code to maximize nomenclatural stability and to minimize the effort required for information retrieval, and the conservation of the name *Crotaphytus vestigium* is therefore appropriate. I request that the Commission use its plenary power to approve Dr McGuire's proposal.

Comments on the proposed designation of neotypes for the nominal species

Vespertilio pipistrellus Schreber, 1774 and *V. pygmaeus* Leach, 1825 (currently

Pipistrellus pipistrellus and *P. pygmaeus*; Mammalia, Chiroptera)

(Case 3073; see BZN 56: 182-186; 57: 49-50, 113-116)

Gareth Jones

*School of Biological Sciences, University of Bristol, Woodland Road,
Bristol, BS8 1UG, U.K.*

Otto von Halversen and his co-workers are pressing for the adoption of the name *Pipistrellus mediterraneus* Cabrera, 1904, described from Valencia, Spain, for the 55 kHz phonic type of pipistrelle bat (BZN 57: 113-115), even though *P. pygmaeus* (Leach, 1825) is now being widely used.

I should like to bring to the attention of workers the following issues.

1. There is still no definite morphological criterion available that will unambiguously separate the two cryptic species. The phalanx ratio cited as being 'distinctive' by Halversen et al. (BZN 57: 114, para. 3(b)) actually shows overlap between the two species (G. Jones, unpublished).

2. Both species are found in Spain (albeit the 55 kHz phonic type is more abundant), so it not absolutely certain that Cabrera's (1904) description of *P. mediterraneus* referred to a 55 kHz bat (although it probably did).

3. In relation to *Pipistrellus pipistrellus*, Helversen et al. (BZN 57: 114, para. 2) noted that 'Schreber's description was based on the observations of Daubenton (1759) who lived in Montbart in France, a region where the 45 kHz phonic type is much more common than the 55 kHz one'. In fact, Schreber (1774, pp. 167–168) referred to the previous publications of Buffon (1760) and Pennant (1771), as well as Daubenton (1759) (para. 1 of the application), and recorded the occurrence of the species in Germany: (in translation) 'In Germany it appears to be scarce and it is native in local areas and regions'.

4. The name *P. pygmaeus* is used in recent and ongoing publications. These include Häussler et al. (1999) *Myotis*, 37: 27–40; Braun & Häussler (1999) *Carolinea*, 57: 111–120; Russo & Jones (2000) *Mammalia*, 64: 187–197; Parsons & Jones (2000) *Journal of Experimental Biology*, 203: 2641–2656. The name is also being used in the new Dutch translation of Schober & Grimmberger's *A guide to the bats of Britain and Europe* (translated by P. Lina), in the *New handbook of British mammals* (edited by S. Harris), and is listed in the Annex of Accepted Names for the European Bat Agreement. The name *P. pygmaeus* has also been used in many popular articles and in conference abstracts.

Adoption of the name *Pipistrellus mediterraneus* at this stage for the 55 kHz phonic type of pipistrelle would create considerable confusion.

Comment on the proposed conservation of LORISIDAE Gray, 1821 and GALAGIDAE Gray, 1825 (Mammalia, Primates) as the correct original spellings
(Case 3004; see BZN 55: 165–168; 56: 73; 57: 51, 121–123, 228–231)

Eric Delson

*Department of Anthropology, Lehman College and the Graduate School,
City University of New York; New York Consortium in Evolutionary Primatology;
Department of Vertebrate Paleontology, American Museum of Natural History,
New York, NY 10024, U.S.A.*

I write in support of the proposal by Schwartz et al. (BZN 55: 165–168, September 1998) to conserve the family-group names LORISIDAE and GALAGIDAE as the correct original spellings, although J.E. Gray (1821, 1825) established them in the forms LORIDAE and GALAGONINA respectively. The matter at issue is the stems for the genera *Loris* and *Galago*: whether the widespread 'Loris-' and 'Galag-' or Gray's 'Lor-' and 'Galagon-'.

Before Jenkins (1987) considered that the stems 'Lor-' and 'Galagon-' and resultant family-group spellings should be reinstated under the provisions of the 3rd edition of the Code, almost all authors had used the modified forms first published by Flower & Lydekker (1891) and later popularized by Gregory (1915). Schwartz et al.'s proposal was supported by Yalden (BZN 56: 73) but rejected by Groves & Jenkins (BZN 57: 51), whose argument was in turn opposed by Schwartz et al. (BZN 57: 121–122). In the latest comment on this case, Mowbray et al. (BZN 57: 228–231) have further responded to Groves & Jenkins and formally raised the issue of the

spellings INDRIDAE vs. INDRIIDAE (based on the genus *Indri* E. Geoffroy Saint-Hilaire, 1796), to which Groves & Jenkins's comment briefly alluded.

Article 29.3.3 (previously 29b(ii)) of the Code states that a generic name which is not Greek or Latin takes the stem adopted by the author of a new family-group name based on that genus. However, in the 4th edition of the Code a new provision bears strongly on this case: Article 29.5 notes that 'If a spelling of a family-group name was not formed in accordance with Article 29.3 but is in prevailing usage, that spelling is to be maintained, whether or not it is the original spelling and whether or not its derivation from the name of the type genus is in accordance with the grammatical procedures in Articles 29.3.1 and 29.3.2'.

It is clear that had this new provision been in effect in 1987, Jenkins would not have made the proposal to reinstate Gray's original spellings. Even now, as shown by Schwartz et al. in their comment, recent authoritative works have continued to employ the widespread emended spellings LORISIDAE and GALAGIDAE, which are 'in prevailing usage' in the sense of Article 29.5 and the Code Glossary.

Groves & Jenkins (BZN 57: 51), standing against the Schwartz et al. proposals, noted that the name INDRIIDAE Burnett, 1828 also requires alteration to INDRIDAE, as originally published. Mowbray et al. (BZN 57: 228–230) have reviewed the history of this name in greater detail and argued for the retention of the prevailing spelling INDRIIDAE. In fact, Article 29.5 would apply here as well.

At least one additional primate family-group name falls under the same provisions. Gray (1825) named the family-group taxon *Tarsina*, based upon *Tarsius* Storr, 1780. Burnett (1828) modified this to TARSIDAE, and it was only Gill (1872) who proposed the spelling TARSIIDAE, which is in prevailing usage today. Yet Jenkins (1987) employed the latter spelling in the same volume in which she altered LORISIDAE to LORIDAE, GALAGIDAE to GALAGONIDAE, and INDRIIDAE to INDRIDAE. To return the question put by Groves & Jenkins to Schwartz et al., why did Groves & Jenkins not question the spelling of TARSIIDAE in addition to the other three family-group names? Fortunately they did not do so.

The Commission is requested to rule in favor of the proposals put forward by Schwartz et al. and by Mowbray et al.

Additional reference

Gill, T. 1872. Arrangement of the families of mammals with analytical tables. *Smithsonian Miscellaneous Collections*, 11(1): 1–98.

OPINION 1965

***Euchilus* Sandberger, 1870 and *Stalioa* Brusina, 1870 (Mollusca, Gastropoda): *Bithinia deschiensiana* Deshayes, 1862 and *Paludina desmarestii* Prévost, 1821 designated as the respective type species, with the conservation of *Bania* Brusina, 1896**

Keywords. Nomenclature; taxonomy; Gastropoda; prosobranchs; HYDROBIIDAE; *Euchilus*; *Stalioa*; *Bania*; *Euchilus deschiensianus*; *Stalioa desmarestii*; *Bania prototypica*; Tertiary.

Ruling

- (1) Under the plenary power all previous fixations of type species for the following nominal genera are hereby set aside:
 - (a) *Euchilus* Sandberger, 1870 prior to that by Sandberger (1872) of *Bithinia deschiensiana* Deshayes, 1862;
 - (b) *Stalioa* Brusina, 1870 prior to that by Cossmann (1893) of *Paludina desmarestii* Prévost, 1821.
- (2) The following names are hereby placed on the Official List of Generic Names in Zoology:
 - (a) *Euchilus* Sandberger, 1870 (gender: masculine), type species by subsequent designation by Sandberger (1872) *Bithinia deschiensiana* Deshayes, 1862 by the ruling in (1)(a) above;
 - (b) *Stalioa* Brusina, 1870 (gender: feminine), type species by subsequent designation by Cossmann (1893) *Paludina desmarestii* Prévost, 1821 by the ruling in (1)(b) above;
 - (c) *Bania* Brusina, 1896 (gender: feminine), type species by monotypy *Stalioa prototypica* Brusina, 1872.
- (3) The following names are hereby placed on the Official List of Specific Names in Zoology:
 - (a) *deschiensiana* Deshayes, 1862, as published in the binomen *Bithinia deschiensiana* (specific name of the type species of *Euchilus* Sandberger, 1870);
 - (b) *desmarestii* Prévost, 1821, as published in the binomen *Paludina desmarestii* (specific name of the type species of *Stalioa* Brusina, 1870);
 - (c) *prototypica* Brusina, 1872, as published in the binomen *Stalioa prototypica* (specific name of the type species of *Bania* Brusina, 1896).
- (4) The following names are hereby placed on the Official Index of Rejected and Invalid Names in Zoology:
 - (a) *Stoliva* Fuchs, 1877 (an incorrect subsequent spelling of *Stalioa* Brusina, 1870);
 - (b) *Sandbergeriella* Schlickum, 1968 (a junior objective synonym of *Stalioa* Brusina, 1870);
 - (c) *Stalioia* Fischer, 1885 (an unnecessary replacement name and junior objective synonym of *Stalioa* Brusina, 1870).

History of Case 3008

An application for the designation of *Bithinia deschiensiana* Deshayes, 1862 and *Paludina desmarestii* Prévost, 1821 as the respective type species of *Euchilus* Sandberger, 1870 and *Stalioa* Brusina, 1870, together with the conservation of *Bania* Brusina, 1896, was received from Dr D. Kadolsky (*Sanderstead, South Croydon, Surrey, U.K.*) on 11 December 1995. After correspondence the case was published in BZN 55: 82–86 (June 1998). Notice of the case was sent to appropriate journals.

A comment from Prof Philippe Bouchet (*Muséum National d'Histoire Naturelle, Paris, France*) was published in BZN 56: 187 (September 1999). Prof Bouchet opposed the designation of *Bithinia deschiensiana* Deshayes, 1862 as the type species of *Euchilus* Sandberger, 1870 and the suppression of the name *Stoliva* Fuchs, 1877, a doubtful senior subjective synonym of *Bania* Brusina, 1896 (para. 8 of the application). A reply from the author of the application was published in BZN 56: 266–267 (December 1999).

The application was offered for voting in three parts. Vote 1 related to the conservation of *Euchilus* Sandberger, 1870 and placement of the name, and the name of its type species, on Official Lists (proposals (1)(a)(i), (2)(a) and (3)(a) on BZN 55: 84). Vote 2 related to the conservation of *Stalioa* Brusina, 1870 and placement of the name, and the name of its type species, on Official Lists, together with placement of the junior objective synonyms *Sandbergeriella* Schlickum, 1968 and *Stalioa* Fischer, 1885 on the Official Index (proposals (1)(a)(ii), (2)(b), (3)(b), (4)(b) and (4)(c) on BZN 55: 84–85). Vote 3 related to the conservation of *Bania* Brusina, 1896 and placement of the name, and the name of its type species, on Official Lists, together with suppression of the name *Stoliva* Fuchs, 1877 (proposals (1)(b), (2)(c), (3)(c) and (4)(a) on BZN 55: 85).

Decision of the Commission

On 1 September 2000 the members of the Commission were invited to vote on the proposals published in BZN 55: 84–85. At the close of the voting period on 1 December 2000 the votes were as follows:

Vote 1. Affirmative votes — 13: Brothers, Cogger, Kerzhner, Kraus, Lamas, Macpherson, Mahnert, Martins de Souza, Mawatari, Nielsen, Ng, Papp, Štys

Negative votes — 5: Alonso-Zarazaga, Bock, Bouchet, Calder and Rosenberg.

Vote 2. Affirmative votes — 14: Alonso-Zarazaga, Brothers, Cogger, Kerzhner, Kraus, Lamas, Macpherson, Mahnert, Martins de Souza, Mawatari, Ng, Papp, Rosenberg, Štys

Negative votes — 4: Bock, Bouchet, Calder and Nielsen.

Vote 3. Affirmative votes — 11: Brothers, Cogger, Kerzhner, Kraus, Lamas, Macpherson, Mahnert, Martins de Souza, Mawatari, Ng, Papp

Negative votes — 7: Alonso-Zarazaga, Bock, Bouchet, Calder, Nielsen, Rosenberg and Štys.

Patterson and Song abstained.

No votes were received from Dupuis, Eschmeyer and Ride.

Minelli was on leave of absence.

Calder commented: 'Maintaining the type species fixations that are valid under the Code of both *Euchilus* Sandberger, 1870 and *Stalioa* Brusina, 1870 and, if necessary, establishing a new name for the genus-group taxon including *Bithinia deschiensiana* Deshayes, 1862 would not seem overly disturbing to nomenclatural stability in this case'. Kerzhner commented: 'I am against the placement of the name *Stoliva* Fuchs, 1877 on the Official Index, and I also consider the placement of *Sandbergiella* Schlickum, 1968 and *Stalioa* Fischer, 1885 on the Index to be superfluous. There are three other incorrect subsequent spellings of *Stalioa* listed in vol. 4 (1940) of S.A. Neave's *Nomenclator Zoologicus*'. Ng commented: 'I see no reason why the name *Stoliva* should be suppressed. It is clearly an incorrect spelling, as pointed out by Bouchet in his comment, and if treated as such poses no nomenclatural problems'. Rosenberg commented: 'Because of the conflicting taxonomic concepts of *Euchilus*, I think stability of nomenclature would be best served by making the name an objective synonym of *Stalioa*'.

In Vote 3 the proposal to suppress the name *Stoliva* Fuchs, 1877 failed to meet the two-thirds majority necessary for approval, and the name is placed on the Official Index as an incorrect subsequent spelling of *Stalioa* Brusina, 1870. The name *Bania* Brusina, 1896 has been removed from the synonymy of *Stalioa* by the designation of *Paludina desmarestii* Prévot, 1821 as the type species of *Stalioa* in Vote 2; *Bania* is conserved and placed on the Official List with *Stalioa prototypica* Brusina, 1872 as the type species.

Original references

The following are the original references to the names placed on Official Lists and an Official Index by the ruling given in the present Opinion:

- Bania* Brusina, 1896, *Glasnik Hrvatskoga Naravoslovnoga Društva*, **9**: 130. [In Serbo-Croatian and French].
- deschiensiana*, *Bithinia*, Deshayes, 1862, in: *Description des animaux sans vertèbres du Bassin de Paris*, part 2, p. 492.
- desmarestii*, *Paludina*, Prévost, 1821, *Journal de Physique, de Chimie, d'Histoire naturelle et des Arts*, **92**: 426.
- Euchilus* Sandberger, 1870, *Die Land- und Süßwasser-Conchylien der Vorwelt*, livraison 2–3, pl. 11, fig. 10.
- prototypica*, *Stalioa*, Brusina, 1872, *Rad Jugoslavenske Akademije Znanosti i Umjetnosti*, **19**: 144.
- Sandbergiella* Schlickum, 1968, *Archiv für Molluskenkunde*, **98**(1–2): 53.
- Stalioa* Brusina, 1870, *Verhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien*, **20**: 937.
- Stalioa* Fischer, 1885, in: *Manuel de conchyliologie et de paléontologie conchyliologique ou histoire naturelle des mollusques vivants et fossiles*, p. 731.
- Stoliva* Fuchs, 1877, *Zeitschrift der Deutschen Geologischen Gesellschaft*, **29**(4): 682.

The following is the reference for the designation of *Bithinia deschiensiana* Deshayes, 1862 as the type species of *Euchilus* Sandberger, 1870:

- Sandberger, C.L.F. von.** 1872. *Die Land- und Süßwasser-Conchylien der Vorwelt*, livraison 6–8, p. 225.

The following is the reference for the designation of *Paludina desmarestii* Prévost, 1821 as the type species of *Stalioa* Brusina, 1870:

- Cossmann, M.** 1893. *Annales de la Société Royale Malacologique de Belgique*, **28**: 15.

OPINION 1966

***Gnomulus* Thorell, 1890 (Arachnida, Opiliones): *Gnomulus sumatranus* Thorell, 1891 designated as the type species**

Keywords. Nomenclature; taxonomy; Arachnida; Opiliones; ONCOPODIDAE; *Gnomulus*; *Gnomulus sumatranus*.

Ruling

- (1) Under the plenary power all previous fixations of type species for the nominal genus *Gnomulus* Thorell, 1890 are hereby set aside and *Gnomulus sumatranus* Thorell, 1891 is designated as the type species.
- (2) The name *Gnomulus* Thorell, 1890 (gender: masculine), type species by designation under the plenary power in (1) above *Gnomulus sumatranus* Thorell, 1891, is hereby placed on the Official List of Generic Names in Zoology.
- (3) The name *sumatranus* Thorell, 1891, as published in the binomen *Gnomulus sumatranus* and as defined by the male lectotype from Mount Singalang, West Sumatra, now in the Museo Civico di Storia Naturale, Genoa, designated by Schwendinger & Martens (1999) (specific name of the type species of *Gnomulus* Thorell, 1890) is hereby placed on the Official List of Specific Names in Zoology.

History of Case 3116

An application to conserve the usage of *Gnomulus* Thorell, 1890 by the designation of *G. sumatranus* Thorell, 1891 as the type species was received from Dr Peter J. Schwendinger (*Muséum d'Histoire Naturelle, Genève, Switzerland*) and Dr Jochen Martens (*Institut für Zoologie, Johannes Gutenberg-Universität Mainz, Mainz, Germany*) on 7 February 1999. After correspondence the case was published in *BZN* **56**: 171–173 (September 1999). Notice of the case was sent to appropriate journals.

The publication by the authors of the application, referred to as 'in preparation' in para. 6 and the references, appeared in December 1999 in *Revue Suisse de Zoologie*, **106**(4): 945–982. The paper included (p. 946) a discussion of the type species designation for *Gnomulus* and a note of the application, and (p. 958) designation of Thorell's (1891) male syntype of *G. sumatranus* as the lectotype.

Decision of the Commission

On 1 September 2000 the members of the Commission were invited to vote on the proposals published in *BZN* **56**: 172–173. At the close of the voting period on 1 December 2000 the votes were as follows:

Affirmative votes — 18: Alonso-Zarazaga, Bock, Brothers, Calder, Cogger, Kraus, Lamas, Macpherson, Mahnert, Martins de Souza, Mawatari, Ng, Nielsen, Papp, Patterson, Rosenberg, Song, Štys

Negative votes — 2: Bouchet and Kerzhner.

No votes were received from Dupuis, Eschmeyer and Ride.

Minelli was on leave of absence.

Bouchet commented: 'I am reluctant to use the plenary power to deal with a nomenclatural issue concerning a generic name (*Gnomulus* Thorell, 1890) that appears to have been used so rarely. The Code should apply'.

Original references

The following are the original references to the names placed on Official Lists by the ruling given in the present Opinion:

Gnomulus Thorell, 1890, *Annali del Museo Civico di Storia Naturale di Genova*, (2)**10**: 378.
sumatranus, *Gnomulus*, Thorell, 1891, *Annali del Museo Civico di Storia Naturale di Genova*, (2)**10**: 759.

The following is the reference for the designation of the lectotype of *Gnomulus sumatranus* Thorell, 1891:

Schwendinger, P.J. & Martens, J. 1999. *Revue Suisse de Zoologie*, **106**(4): 958.

OPINION 1967

Disparalona Fryer, 1968 (Crustacea, Branchiopoda): conserved

Keywords. Nomenclature; taxonomy; Branchiopoda; CHYDORIDAE; *Disparalona*; *Disparalona rostrata*; *Phrixura*.

Ruling

- (1) Under the plenary power the name *Phrixura* Müller, 1867 is hereby suppressed for the purposes of the Principle of Priority but not for those of the Principle of Homonymy.
- (2) The name *Disparalona* Fryer, 1968 (gender: feminine), type species by original designation *Lynceus rostratus* Koch, 1841, is hereby placed on the Official List of Generic Names in Zoology.
- (3) The name *rostratus* Koch, 1841, as published in the binomen *Lynceus rostratus* (specific name of the type species of *Disparalona* Fryer, 1968), is hereby placed on the Official List of Specific Names in Zoology.
- (4) The name *Phrixura* Müller, 1867, as suppressed in (1) above, is hereby placed on the Official Index of Rejected and Invalid Generic Names in Zoology.

History of Case 2990

An application for the conservation of the name *Disparalona* Fryer, 1968 was received from Dr Geoffrey Fryer (*Institute of Environmental and Biological Sciences, University of Lancaster, Lancaster, U.K.*) on 29 June 1995. After correspondence the case was published in BZN 54: 89–91 (June 1997). Notice of the case was sent to appropriate journals.

A comment opposing the application from Dr Mark J. Grygier (*Lake Biwa Museum, Kusatsu, Shiga, Japan*) was published in BZN 55: 105 (June 1998). A reply from the author of the application was published in BZN 55: 169 (September 1998).

The application was sent to the Commission for voting on 1 December 1998. The proposals to suppress the name *Phrixura* Müller, 1867, and to place *Disparalona* Fryer, 1968 and the name of its type species on Official Lists, received a majority (13 votes in favour and nine against; four Commissioners did not vote) but failed to reach the required two-thirds majority for approval.

A comment in support of the application from Dr Werner Hollwedel (*Varel, Germany*) was published in BZN 56: 191 (September 1999). A further supportive comment from Dr Dietrich Flössner (*Universität Jena, Institut für Ökologie, Jena, Germany*) was published in BZN 56: 270–271 (December 1999).

Under the Bylaws the application was submitted for a revote.

Decision of the Commission

On 1 September 2000 the members of the Commission were invited to revote on the proposals published in BZN 54: 91. At the close of the voting period on 1 December 2000 the votes were as follows:

Affirmative votes — 17: Bock, Brothers, Calder, Cogger, Kerzhner, Kraus, Lamas, Macpherson, Mahnert, Martins de Souza, Mawatari, Nielsen, Papp, Patterson, Rosenberg, Song, Štys

Negative votes — 3: Alonso-Zarazaga, Bouchet and Ng.

No votes were received from Dupuis, Eschmeyer and Ride.

Minelli was on leave of absence.

Voting for, Kerzhner commented: 'I had serious doubts when I voted 'For' in the first vote on this case: the name *Disparalona* is relatively recent and the history of the name *Phrixura* is not of primary importance (many widely used names have been established as a result of similar mistakes). It is the use of *Disparalona* in many reference books (including very recent ones) that has persuaded me to vote in favour'. Voting against, Alonso-Zarazaga commented: 'The main argument used for the conservation of the name *Phrixura* is that it was based on a teratological specimen and its characters do not define any genus. If the author of the application was so worried by the lack of 'good' characters for *Phrixura* he should have transferred those of *Disparalona* to it, as did Alonso (1996) (para. 7 of the application). The name *Phrixura* should have displaced *Disparalona* in 1984 when the latter was only 16 years old, following the synonymy of the two names by Michael & Fry, or in 1989, following Frey's reintroduction of *Phrixura*. The continued rejection of *Phrixura* by disregarding Articles 18 and 23m of the 3rd edition of the Code has been because of authors' preferences. The genus *Disparalona* is not important from an economical, medical or veterinary point of view and priority should have been followed'.

Original references

The following are the original references to the names placed on Official Lists and an Official Index by the ruling given in the present Opinion:

Disparalona Fryer, 1968, *Philosophical Transactions of the Royal Society of London*, (B)**254**: 286.

Phrixura Müller, 1867, *Naturhistorisk Tidsskrift*, **5**: 184.

rostratus, Lynceus, Koch, 1841, *Deutschlands Crustaceen, Myriapoden und Arachniden, ein Beitrag zur deutschen Fauna*, Heft 36, species 12.

OPINION 1968

Phytobius Schönherr, 1833 (Insecta, Coleoptera): placed on the Official List

Keywords. Nomenclature; taxonomy; Coleoptera; CURCULIONIDAE; *Phytobius*; *Phytobius leucogaster*; weevils.

Ruling

- (1) Under the plenary power the entry for the name *Phytobius* Dejean, 1835 is hereby deleted from the Official List of Generic Names in Zoology.
- (2) The name *Phytobius* Schönherr, 1833 (gender: masculine), type species by original designation of the replaced nominal genus *Hydaticus* Schönherr, 1825, *Rhynchaenus myriophylli* Gyllenhal, 1813 (a junior subjective synonym of *Curculio leucogaster* Marsham, 1802), is hereby placed on the Official List of Generic Names in Zoology.
- (3) The name *leucogaster* Marsham, 1802, as published in the binomen *Curculio leucogaster* (senior subjective synonym of *Rhynchaenus myriophylli* Gyllenhal, 1813, the type species of *Phytobius* Schönherr, 1833), is hereby placed on the Official List of Specific Names in Zoology.
- (4) The name *Hydaticus* Schönherr, 1825 is hereby placed on the Official Index of Rejected and Invalid Generic Names in Zoology (a junior homonym of *Hydaticus* Leach, 1817).

History of Case 2957

An application for the conservation of the generic name *Phytobius* Dejean, 1835 by the suppression of *Phytobius* Schönherr, 1833 was received from Dr H. Silfverberg (*Zoological Museum, Helsingfors Universitet, Finland*) on 21 November 1994. After correspondence the case was published in BZN 55: 22–23 (March 1998). Notice of the case was sent to appropriate journals.

An earlier application (1980) by Dr Silfverberg resulted in the placement of the name *Phytobius* Dejean, 1835 on the Official List with *Curculio quadrituberculatus* Fabricius, 1787 as the type species by subsequent designation by Thomson (1859) (Opinion 1529, March 1989).

However, O'Brien & Wibmer (1982, 1984) had previously pointed out that the name *Phytobius* was first published by Schönherr in 1833 and that it was a replacement name for the junior homonym *Hydaticus* Schönherr, 1825. The type species, by original designation, for *Hydaticus* Schönherr is *Rhynchaenus myriophylli* Gyllenhal, 1813 which, under Article 67.8 of the Code, is also the type species of *Phytobius* Schönherr (the senior subjective synonym *Curculio leucogaster* Marsham, 1802 is the valid name of the taxon).

The current application sought to suppress *Phytobius* from Schönherr (1833) in order to retain the authorship and date of Dejean (1835) and *C. quadrituberculatus* as the type species.

Comments opposing the application from Dr Enzo Colonelli (*Rome, Italy*) and from Drs Miguel A. Alonso-Zarazaga (*Museo Nacional de Ciencias Naturales,*

Madrid, Spain) & Christopher H.C. Lyal (*The Natural History Museum, London, U.K.*) were published in BZN 56: 191–197 (September 1999). These authors were in accord with O'Brien & Wibmer's (1984) interpretation; they noted that usages of the name *Phytobius* in Schönherr (1833), Dejean (1835) and Schönherr (1835) refer to the same taxon; that the previous acceptance by the Commission of Thomson's (1859) type designation for *Phytobius* was in error; that many authors, both before and after 1984, used the name *Phytobius* in the sense of Schönherr (1833), i.e. with *R. myriophylli* as the type species (BZN 56: 192, paras. 7 and 8; 195, para. 4); that *C. quadrituberculatus* has been included in *Pelenomus* Thomson, 1859 by a number of authors (BZN 56: 195, para. 4); and that the family-group name PHYTOBIINI Gistel, 1856 is based on *Phytobius* Schönherr, 1833.

A reply by the author of the application was published in BZN 56: 197 (September 1999).

The course proposed by Dr Silfverberg (to suppress the name *Phytobius* Schönherr, 1833, and to retain the authorship and date as Dejean (1835) and *Curculio quadrituberculatus* Fabricius, 1787 as the type species, set out in BZN 55: 23) and that proposed by Drs Colonelli, Alonso-Zarazaga & Lyal (to set aside the previous ruling and to place *Phytobius* Schönherr, 1833 on the Official List, with *Rhynchaenus myriophylli* Gyellenhal, 1813 as the type species, set out in BZN 56: 196) were offered as alternatives for voting. Both courses required the use of the plenary power.

Decision of the Commission

On 1 September 2000 the members of the Commission were invited to vote either on the proposals published in BZN 55: 23 or on those published in BZN 56: 196. At the close of the voting period on 1 December 2000 the votes were as follows:

Proposals set out in BZN 55: 23 — 1: Bock

Proposals set out in BZN 56: 196 — 19: Alonso-Zarazaga, Bouchet, Brothers, Calder, Cogger, Kerzhner, Kraus, Lamas, Macpherson, Mahnert, Martins de Souza, Mawatari, Ng, Nielsen, Papp, Patterson, Rosenberg, Song and Štys.

No votes were received from Dupuis, Eschmeyer and Ride.

Minelli was on leave of absence.

Papp commented: 'It is clear that in 1989 the Commission was in error in approving the original application'.

Original references

The following are the original references to the names placed on Official Lists and an Official Index by the ruling given in the present Opinion:

Hydaticus Schönherr, 1825, *Isis von Oken*, 16: col. 583.

leucogaster, *Curculio*, Marsham, 1802, *Coleoptera Britannica*, vol. 1, p. 253.

Phytobius Schönherr, 1833, *Genus et species Curculionidum cum synonymia hujus familiae*, vol. 1, p. 20.

OPINION 1969

Drosophila rufifrons Loew, 1873 and *D. lebanonensis* Wheeler, 1949 (currently *Scaptodrosophila rufifrons* and *S. lebanonensis*; Insecta, Diptera): specific names conserved by the designation of a neotype for *D. rufifrons*

Keywords. Nomenclature; taxonomy; Diptera; DROSOPHILIDAE; *Scaptodrosophila rufifrons*; *Scaptodrosophila lebanonensis*; lesser fruit flies; Europe.

Ruling

- (1) Under the plenary power all previous type fixations for the nominal species *Drosophila rufifrons* Loew, 1873 are hereby set aside and the male specimen in the Hungarian Natural History Museum, Budapest, labelled as 'Neotype' on a red-margined card, and with label data: (1) K[jiskunsági] N. P.: Kunfehértó, *Morus alba* kicsorgó nedvén [oozing sap]; (2) 1982. VI. 15–23., leg. Papp L., is designated as the neotype.
- (2) The following names are hereby placed on the Official List of Specific Names in Zoology:
 - (a) *rufifrons* Loew 1873, as published in the binomen *Drosophila rufifrons* and as defined by the neotype designated in (1) above;
 - (b) *lebanonensis* Wheeler, 1949, as published in the binomen *Drosophila lebanonensis*.

History of Case 3128

An application for the conservation of the specific names of *Drosophila rufifrons* Loew, 1873 and *D. lebanonensis* Wheeler, 1949 by the designation of a neotype for *D. rufifrons* was received from Dr Gerhard Bächli (*Zoologisches Museum, Universität Zürich, Zürich, Switzerland*) on 5 May 1999. After correspondence the case was published in BZN 56: 179–181 (September 1999). Notice of the case was sent to appropriate journals.

A comment in support of the application from Dr V. Sidorenko (*Institute of Biology and Soil Sciences, Far Eastern Division of the Russian Academy of Sciences, Vladivostok, Russia*) was published in BZN 57: 48 (March 2000).

It was noted on the voting paper that the application had the support of Dr L. Papp (*Hungarian Museum of Natural History, Budapest, Hungary*).

The paper by Papp, Rác & Bächli, cited in the application (para. 3 and the references) as 'in press' in *Mitteilungen der Schweizerischen Entomologischen Gesellschaft*, 72: 105–117, was published in 1999. The publication included a description and illustrations of *Scaptodrosophila rufifrons* (Loew, 1873) and the proposed neotype.

Decision of the Commission

On 1 September 2000 the members of the Commission were invited to vote on the proposals published in BZN 56: 180. At the close of the voting period on 1 December 2000 the votes were as follows:

Affirmative votes — 19: Alonso-Zarazaga, Bock, Bouchet, Brothers, Calder, Cogger, Kerzhner, Kraus, Lamas, Macpherson, Mahnert, Martins de Souza, Mawatari, Ng, Nielsen, Patterson, Rosenberg, Song, Štys

Negative votes — none.

Papp abstained.

No votes were received from Dupuis, Eschmeyer and Ride.

Minelli was on leave of absence.

In abstaining, Papp commented: 'I prefer to abstain from voting in this case. My rôle was rather direct and my views are already known'.

Original references

The following are the original references to the names placed on an Official List by the ruling given in the present Opinion:

lebanonensis, *Drosophila*, Wheeler, 1949, *University of Texas Publications*, **4920**: 143.
rufifrons, *Drosophila*, Loew, 1873, *Berliner Entomologische Zeitschrift*, **17**: 50.

OPINION 1970

Odatria keithhornei Wells & Wellington, 1985 (Reptilia, Squamata): specific name placed on the Official List

Keywords. Nomenclature; taxonomy; Reptilia; Squamata; VARANIDAE; *Varanus keithhornei*; *Varanus teriae*; lizards; monitors; Australia.

Ruling

- (1) The name *keithhornei* Wells & Wellington, 1985, as published in the binomen *Odatria keithhornei* and as defined by the holotype (catalogue no. J31566 in the Queensland Museum, collected from Buthen Buthen, Nesbit River, Cape York Peninsula by G. Czechura in 1978) is hereby placed on the Official List of Specific Names in Zoology.
- (2) The name *teriae* Sprackland, 1991, as published in the binomen *Varanus teriae*, is hereby placed on the Official Index of Rejected and Invalid Specific Names in Zoology (a junior objective synonym of *Odatria keithhornei* Wells & Wellington, 1985).

History of Case 3043

An application for the conservation of the specific name of *Varanus teriae* Sprackland, 1991 by the suppression of the senior objective synonym *V. keithhornei* (Wells & Wellington, 1985) was received from Prof R.G. Sprackland (539 Summit Drive, Santa Cruz, California, U.S.A.), Prof Hobart M. Smith (University of Colorado, Boulder, Colorado, U.S.A.) and Dr P. Strimple (Cincinnati, Ohio, U.S.A.) on 19 December 1996. After correspondence the case was published in BZN 54: 100–103 (June 1997). Notice of the case was sent to appropriate journals.

A comment opposing the application from Prof L.B. Holthuis (*Nationaal Natuurhistorisch Museum, Leiden, The Netherlands*), together with a reply by the authors of the application, was published in BZN 54: 250–251 (December 1997).

Further opposing comments from Drs Jeanette Covacevich & Patrick Couper (*Queensland Museum, South Brisbane, Queensland, Australia*) and from Dr Glenn M. Shea (*University of Sydney, New South Wales, Australia*) were published in BZN 55: 37–39 (March 1998); from Drs T. Ziegler & W. Böhme (*Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn, Germany*) and from Mr R.T. Hoser (*Doncaster, Victoria, Australia*) were published in BZN 55: 111–114 (June 1998); and from Dr H.G. Cogger (*clo The Australian Museum, Sydney South, New South Wales, Australia*) was published in BZN 56: 272–273 (December 1999). A reply to these comments by the authors of the application was published in BZN 56: 273–274 (December 1999).

Decision of the Commission

On 1 September 2000 the members of the Commission were invited to vote on the proposals published in BZN 54: 102. At the close of the voting period on 1 December 2000 the votes were as follows:

Affirmative votes — 1: Bock

Negative votes — 19: Alonso-Zarazaga, Bouchet, Brothers, Calder, Cogger, Kerzhner, Kraus, Lamas, Macpherson, Mahnert, Martins de Souza, Mawatari, Ng, Nielsen, Papp, Patterson, Rosenberg, Song and Štys.

No votes were received from Dupuis, Eschmeyer and Ride.

Minelli was on leave of absence.

Since there was a majority against the conservation of the junior name, the specific name of *Odatria keithornei* Wells & Wellington, 1985 is placed on the Official List as the valid name. The specific name of *Varanus teriae* Sprackland, 1991, a junior objective synonym of *O. keithornei*, is placed on the Official Index.

Original references

The following are the original references to the names placed on an Official List and an Official Index by the ruling given in the present Opinion:

keithornei, *Odatria*, Wells & Wellington, 1985, A classification of the Amphibia and Reptilia of Australia. In: *Australian Journal of Herpetology, Supplementary Series*, No. 1, p. 21.
teriae, *Varanus*, Sprackland, 1991, *Memoirs of the Queensland Museum*, **30**(3): 570.

INFORMATION AND INSTRUCTIONS FOR AUTHORS

The following notes are primarily for those preparing applications; other authors should comply with the relevant sections. Applications should be prepared in the format of recent parts of the Bulletin; manuscripts not prepared in accordance with these guidelines may be returned.

General. Applications are requests to the Commission to set aside or modify the Code's provisions as they relate to a particular name or group of names when this appears to be in the interest of stability of nomenclature. Authors submitting cases should regard themselves as acting on behalf of the zoological community and the Commission will treat applications on this basis. Applicants are advised to discuss their cases with other workers in the same field before submitting applications, so that they are aware of any wider implications and the likely reactions of other zoologists.

Text. Typed in double spacing, this should consist of numbered paragraphs setting out the details of the case and leading to a final paragraph of formal proposals. Text references should give dates and page numbers in parentheses, e.g. 'Daudin (1800, p. 39) described . . .'. The Abstract will be prepared by the Secretariat.

References. These should be given for all authors cited. Where possible, ten or more relatively recent references should be given illustrating the usage of names which are to be conserved or given precedence over older names. The title of periodicals should be in full and be underlined; numbers of volumes, parts, etc. should be in arabic figures, separated by a colon from page numbers. Book titles should be underlined and followed by the number of pages and plates, the publisher and place of publication.

Submission of Application. Two copies should be sent to: The Executive Secretary, The International Commission on Zoological Nomenclature, c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. It would help to reduce the time that it takes to process the large number of applications received if the typescript could be accompanied by a disk with copy in IBM PC compatible format, preferably in ASCII text. It would also be helpful if applications were accompanied by photocopies of relevant pages of the main references where this is possible.

The Commission's Secretariat is very willing to advise on all aspects of the formulation of an application.

On the proposed designation of neotypes for the nominal species <i>Vespertilio pipistrellus</i> Schreber, 1774 and <i>V. pygmaeus</i> Leach, 1825 (currently <i>Pipistrellus pipistrellus</i> and <i>P. pygmaeus</i> ; Mammalia, Chiroptera). G. Jones	60
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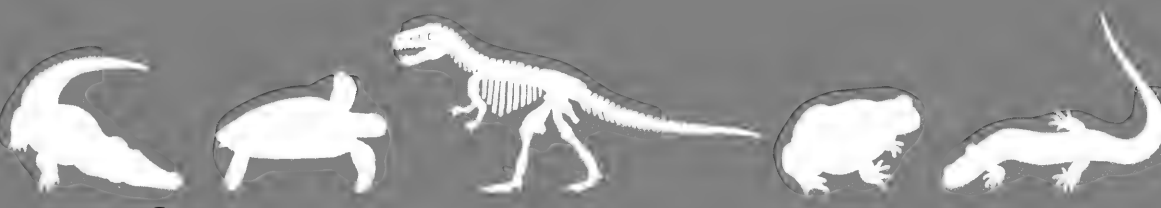
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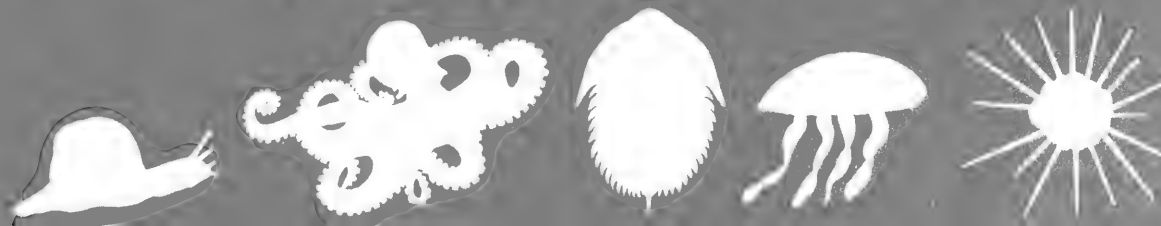
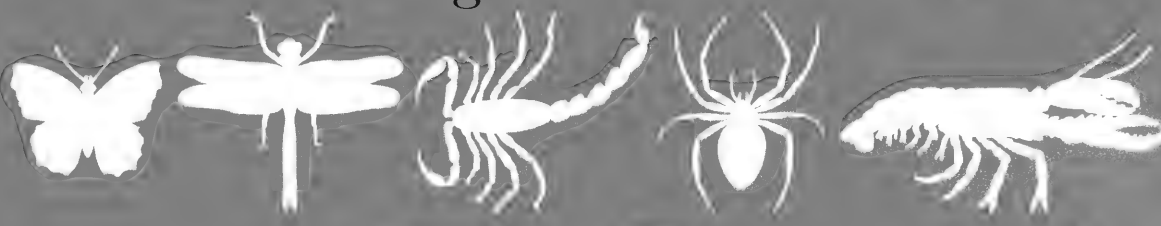
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THE BULLETIN OF ZOOLOGICAL NOMENCLATURE

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BULLETIN OF ZOOLOGICAL NOMENCLATURE

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29 June 2001

Notices

(a) *Invitation to comment.* The Commission is authorised to vote on applications published in the *Bulletin of Zoological Nomenclature* six months after their publication but this period is normally extended to enable comments to be submitted. Any zoologist who wishes to comment on any of the applications is invited to send his contribution to the Executive Secretary of the Commission as quickly as possible.

(b) *Invitation to contribute general articles.* At present the *Bulletin* comprises mainly applications concerning names of particular animals or groups of animals, resulting comments and the Commission's eventual rulings (Opinions). Proposed amendments to the Code are also published for discussion.

Articles or notes of a more general nature are actively welcomed provided that they raise nomenclatural issues, although they may well deal with taxonomic matters for illustrative purposes. It should be the aim of such contributions to interest an audience wider than some small group of specialists.

(c) *Receipt of new applications.* The following new applications have been received since going to press for volume 58, part 1 (published on 30 March 2001). Under Article 82 of the Code, existing usage is to be maintained until the ruling of the Commission is published.

- (1) *Tetrapedia* Klug, 1810, *T. diversipes* Klug, 1810 and *Exomalopsis* Spinola, 1853 (Insecta, Hymenoptera): proposed conservation of usage of the names by the designation of a neotype for *T. diversipes*. (Case 3184). C.D. Michener & J.S. Moure.
- (2) *Nemotois violellus* Stainton, 1851 (currently *Nemophora violellus*; Insecta, Lepidoptera): proposed conservation of the specific name. (Case 3188). M.V. Kozlov.
- (3) *Ammotrecha* Banks, 1900 and *Ammotrechula* Roewer, 1934 (Arachnida, Solifugae): proposed conservation by the designation of *Galeodes limbata* Lucas, 1835 as the type species of *Ammotrecha*; and *Eremobates* Banks, 1900 and *Eremorhax* Roewer, 1934: proposed conservation by the designation of *Galeodes pallipes* Say, 1823 as the type species of *Eremobates*. (Case 3189). M.S. Harvey.
- (4) *Chlorops meigenii* Loew, 1866 (Insecta, Diptera): proposed conservation of the specific name. (Case 3190). E.P. Nartshuk.
- (5) *Pareiasaurus karpinskii* Amalitskii, 1922 (currently *Scutosaurus karpinskii*; Reptilia, Pareiasauria): proposed conservation of the specific name. (Case 3191). M.S.Y. Lee.

- (6) ENIDAE Woodward, 1903 (1880) (Mollusca, Gastropoda): proposed precedence over BULIMINUSIDAE Kobelt, 1880 (proposed emended spelling of BULIMINIDAE to remove homonymy with BULIMINIDAE Jones, 1875 (Rhizopoda, Foraminiferida)). (Case 3192). B. Hausdorf.
- (7) *Chrysodema* Laporte & Gory, 1835 and *Iridotaenia* Deyrolle, 1864 (Insecta, Coleoptera): proposed conservation of usage by the designation of *C. sonnerati* Laporte & Gory, 1835 and *C. sumptuosa* Laporte & Gory, 1835 as the respective type species. (Case 3193). C.L. Bellamy.
- (8) *Lius* Deyrolle, 1864 (Insecta, Coleoptera): proposed conservation. (Case 3194). C.L. Bellamy.
- (9) *Polonograptus* Tsegeljuk, 1976 (Graptolithina): proposed designation of *P. podoliensis* Příbyl, 1983 as the type species. (Case 3195). J.F. Riva, R.B. Rickards & T.N. Koren.
- (10) *Ctenotus decaneurus yampiensis* Storr, 1975 (currently *C. yampiensis*; Reptilia, Sauria): proposed designation of a neotype. (Case 3196). L.A. Smith.
- (11) *Glassia* Davidson, 1881 (Brachiopoda): proposed designation of *G. elongata* Davidson, 1881 as the type species. (Case 3197). P. Copper.
- (12) *Heteromesus* Richardson, 1908 (Crustacea, Isopoda): proposed designation of *H. granulatus* Richardson, 1908 as the type species. (Case 3198). K.L. Merrin & G.C.B. Poore.
- (13) *Limacina* Bosc, 1817 (Mollusca, Gastropoda): proposed precedence over *Spiratella* de Blainville, 1817. (Case 3199). A.W. Janssen & I. Zorn.
- (14) *Gryllus brachypterus* Ocskay, 1826 (currently *Euthystira brachyptera*) and *G. brachypterus* de Haan in Temminck, 1842 (currently *Duolandrevus brachypterus*) (Insecta, Orthoptera): proposed conservation of the specific names. (Case 3200). H. Baur & A. Coray.
- (15) *Scarabaeus punctatus* Villers, 1789 (currently *Pentodon bidens punctatus*; Insecta, Coleoptera): proposed conservation of the specific name. (Case 3201). F.-T. Krell.
- (16) *Podalgus* Burmeister, 1847 (Insecta, Coleoptera): proposed designation of *P. cuniculus* Burmeister, 1847 as the type species. (Case 3202). F.-T. Krell.

(d) *Rulings of the Commission.* Each Opinion published in the *Bulletin* constitutes an official ruling of the International Commission on Zoological Nomenclature, by virtue of the votes recorded, and comes into force on the day of publication of the *Bulletin*.

Election of members of the International Commission on Zoological Nomenclature

The following have been elected as members of the Commission:

Prof Dr WOLFGANG BÖHME (*Zoologisches Forschungsinstitut und Museum Alexander Koenig, 150–164 Adenauerallee, D-5300 Berlin 1, Germany*). Prof Böhme has worked in many fields of amphibian and reptile biology, and is the Editor of the *Handbuch der Reptilien und Amphibien Europas*.

Dr NEAL L. EVENHUIS (*Bishop Museum, 1525 Bernice Street, Honolulu, Hawaii 96817–2704, U.S.A.*). Dr Evenhuis has published many research and bibliographic papers on Diptera, and has been involved in the preparation of major catalogues of existing and fossil flies.

Prof RICHARD A. FORTEY (*Department of Palaeontology, The Natural History Museum, Cromwell Road, London SW7 5BD, U.K.*). Prof Fortey's main research area is trilobites, but he has published papers and books (for both specialist and general readers) on many aspects of palaeobiology and stratigraphy.

Dr R. BRUCE HALLIDAY (*CSIRO Division of Entomology, GPO Box 1700, Canberra, ACT 2601, Australia*). Dr Halliday has published over 50 books and major papers on various aspects of acarology. He is curator of the Arachnida section of the Australian National Insect collection.

Dr JAN VAN TOL (*Naturalis (Nationaal Natuurhistorisch Museum), Darwinweg 2, 2333 CR Leiden, The Netherlands*). Dr Van Tol's main research field is European and Southeast Asian Odonata; he is Editor of *Tijdschrift voor Entomologie* and curator of Orthoptera and Odonata at the Naturalis Museum in Leiden.

The International Code of Zoological Nomenclature

The new and extensively revised 4th Edition of the *International Code of Zoological Nomenclature* (ISBN 0 85301 006 4) was published (in a bilingual volume in English and French) in August 1999. It came into effect on 1 January 2000 and entirely supersedes the 3rd (1985) edition.

The price of the English and French volume of the 4th Edition is £40 or \$65; the following discounts are offered:

Individual members of a scientific society are offered a discount of 25% (price £30 or \$48); the name and address of the society should be given.

Individual members of the American or European Associations for Zoological Nomenclature are offered a discount of 40% (price £24 or \$39).

Postgraduate or undergraduate students are offered a discount of 25% (price £30 or \$48); the name and address of the student's supervisor should be given.

Institutions or agents buying 5 or more copies are offered a 25% discount (price £30 or \$48 for each copy).

Prices include surface postage; for Airmail please add £2 or \$3 per copy.

Copies may be ordered from: ITZN, c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk), or AAZN, Attn. D.G. Smith, MRC-159, National Museum of Natural History, Washington, D.C. 20560-0159, U.S.A. (e-mail: smith.davidg@nsmnh.si.edu).

Payment should accompany orders. Cheques should be made out to 'ITZN' (in sterling or dollars) or to 'AAZN' (in dollars only). Payment to ITZN (but not to AAZN) can also be made by Visa or MasterCard giving the cardholder's number, name and address and the expiry date.

Individual purchasers of the Code are offered a 50% discount on the following publications for personal use:

Towards Stability in the Names of Animals—a History of the International Commission on Zoological Nomenclature 1895–1995 (1995) — reduced from £30 to £15 and from \$50 to \$25;

The Bulletin of Zoological Nomenclature (the Commission's quarterly journal) — discount valid for up to four years; for 2001 the discounted price would be £57 or \$105.

Official texts of the Code in several languages have been authorized by the Commission, and all (including English and French) are equal in authority. German, Japanese, Russian and Spanish texts have now been published and others are planned. Details of price and how to buy the published texts can be obtained from the following e-mail addresses:

German — books@insecta.de

Japanese — tomokuni@kahaku.go.jp

Russian — kim@ik3599.spb.edu

Spanish — mcnb168@mncn.csic.es

Official Lists and Indexes of Names and Works in Zoology — Supplement 1986–2000

The volume entitled *Official Lists and Indexes of Names and Works in Zoology* (ISBN 0 85301 004 8) was published in 1987. It gave details of the names and works on which the Commission had ruled and placed on the Official Lists and Indexes since it was set up in 1895 through to the end of 1985. The volume contained 9917 entries, 9783 being family-group, generic or specific names and 134 relating to works.

In the 15 years between 1986 and the end of 2000 a further 601 Opinions and Directions have been published in the *Bulletin* listing 2371 names and 14 works placed on the Official Lists and Indexes. Details of these 2385 entries are given in a Supplement of 141 pages (ISBN 0 85301 007 2) published early in 2001. Additional sections include (a) a systematic index of names on the Official Lists covering both the 1987 volume and the Supplement; (b) a table correlating the nominal type species of genera listed in the 1987 volume with the valid names of those species when known to be different; and (c) emendments to the 1987 volume.

The cost of the 1987 volume and of the Supplement is £60 or \$110 each, and £100 or \$170 for both volumes ordered together.

Individual buyers of the volumes for their own use are offered a price of £50 or \$85 for each volume, and £90 or \$150 for both.

Individual members of the American or European Association for Zoological Nomenclature are offered a price of £45 or \$70 for each volume, and £80 or \$120 for both.

Prices include postage by surface mail; for Airmail, please add £3 or \$5 for each volume.

Copies may be ordered from: ITZN, c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk), or AAZN, Attn. D.G. Smith, MRC-159, National Museum of Natural History, Washington, D.C. 20560–0159, U.S.A. (e-mail: smith.davidg@nmnh.si.edu).

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The PhyloCode: description and commentary

Peter L. Forey

*Department of Palaeontology, The Natural History Museum,
Cromwell Road, London SW7 5BD, U.K.*

Introduction

This essay is prompted by a seminar which I gave to the Department of Palaeontology at The Natural History Museum, London. The size of the audience indicated strong interest in the subject, and it was suggested that it would make a suitable subject for an article in the *Bulletin of Zoological Nomenclature*. Since I was critical of the proposals of the PhyloCode I was happy to agree to this on the understanding that I could describe the aims and mechanics of the PhyloCode in as neutral a way as possible while allowing myself the opportunity of personal commentary. Therefore, this essay is divided into two distinct parts. Readers may wish to cease reading at the end of the first part and form their own opinions. The PhyloCode is published in preliminary form on the web at www.ohio.edu/PhyloCode, and where possible I take direct quotes (designated in italics — page numbers are irrelevant since different web download programs will paginate differently) so as to avoid any personal filters beyond the selection from the continuous text, which I encourage reading in total.

Part 1. The PhyloCode

The PhyloCode is a new system of Biological Nomenclature which is designed to provide rules to govern the naming of clades across all of biology. The PhyloCode is the formalisation of the ideas of Phylogenetic Nomenclature (also known as phylogenetic taxonomy, see below) which has been discussed in a series of papers beginning with De Queiroz & Gauthier (1990), although many of the issues raised by advocates of Phylogenetic Nomenclature had been discussed long before. A near comprehensive bibliography of Phylogenetic Nomenclature is given following the Preface at the PhyloCode website. It has been discussed, refined and argued over in three symposia, with the formal proposals being set out as a result of a meeting in 1998 at Harvard. The names of 26 people are attached to the PhyloCode as an advisory group but it is unclear as to whether all of these are signatories to all of the aims of the PhyloCode.

I should perhaps make it clear that terms such as Phylogenetic Taxonomy and Phylogenetic Nomenclature were freely interchanged in the earlier papers on Phylogenetic Nomenclature. The two are not the same. Phylogenetic Taxonomy is effectively phylogenetic systematics. We can of course have Phylogenetic Taxonomy without Phylogenetic Nomenclature.

Phylogenetic Nomenclature starts from the premise that there should be congruence between phylogenetic hypotheses and nomenclature. At the moment it is only in draft form, which may be perused at the web site cited above, and the authors welcome comments as to its utility, practicality and the particulars. At present the PhyloCode governs the naming of clades which may be previously un-named or

correspond to taxa above the species level in other biological Codes. Rules governing species names will be added in the future. *'The PhyloCode is designed so that it can be used concurrently with the preexisting Codes [International Code of Zoological Nomenclature, International Code of Botanical Nomenclature and International Code of Bacteriological Nomenclature] or (after rules governing species names are added) as the sole Code governing the names of taxa, if the scientific community ultimately decides that it should. The intent is not to replace existing names but to provide an alternative system for governing the application of both existing and newly proposed names.'* (Preface paragraph 3).

Fundamentally the PhyloCode is designed to name the various parts of the tree of life—clades (ultimately of species) — and it does this by explicit and sole reference to phylogeny. It runs counter to what we are all familiar with by giving no significance to ranks (Genus, Family, Order, etc.); it ignores familiar endings such as (in the Zoological Code) -idae for family, -inae for subfamily, -ini for tribe, etc. Such endings may be retained but they have no hierarchical significance, so that -ini may come to prescribe a more inclusive group than -idae.

The aims of the PhyloCode are directed toward reflecting phylogenetic hypotheses through a system of names and it emphasizes that the usage of those names should be explicit, unambiguous and stable: that is, they should not change their meaning through time. The PhyloCode defines names by reference to a hypothesised phylogeny but once a name is defined it may well be applicable in the context of other phylogenetic hypotheses.

The principles of the PhyloCode are stated under six headings (*PhyloCode Division I. Principles*):

'1. Reference. The primary purpose of taxon names is to provide a means of referring to taxa, as opposed to indicating their characters, relationships, or membership.

2. Clarity. Taxon names should be unambiguous in their designation of particular taxa. Nomenclatural clarity is achieved through explicit definitions.

3. Uniqueness. To promote clarity, each taxon should have only one accepted name, and each accepted name should refer to only one taxon.

4. Stability. The names of taxa should not change over time. As a corollary, it must be possible to name newly discovered taxa without changing the names of previously discovered taxa.

5. Phylogenetic context. The PhyloCode is concerned with the naming of taxa and the application of taxon names within a phylogenetic context.

6. The PhyloCode permits freedom of taxonomic opinion with regard to hypotheses about relationships; it only concerns how names are to be applied within the context of a given phylogenetic hypothesis.'

It needs to be pointed out here that 'taxon' refers to a clade or species. If a clade it does not matter how many species are included. Thus, a clade taxon may be what is referred to as a Genus or an Order or a Phylum under current Linnaean Taxonomy.

The PhyloCode recognises that there are three ways of naming a clade within a phylogenetic context and these lead to the explicit definitions referred to in the Principles. These are illustrated in Figure 1.

Consider a phylogeny as shown here in Figure 1a which shows a phylogeny leading to modern birds which are traditionally called Aves. This lineage may be considered

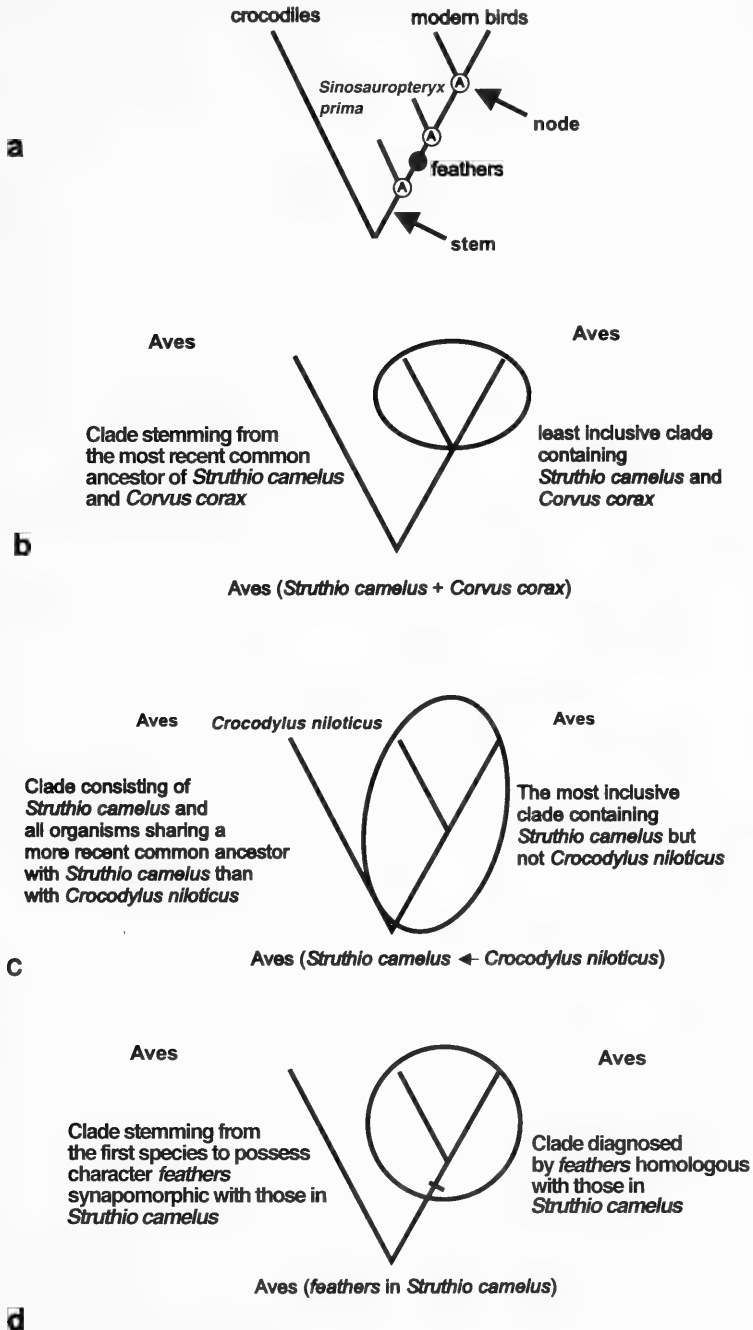


Figure 1. A phylogeny and the three definitions in which the PhyloCode suggests naming. The definitions to the left of each alternative include reference to ancestors, those on the right do not. Below each of the alternatives the shorthand code suggested by the PhyloCode is given. a. A phylogeny showing a lineage of taxa leading to birds and their modern sister-group. b. node based definition. c. Stem based definition. d. Apomorphy based definition.

as a series of cladogenic events, each split being marked as a node which was occupied by an ancestor 'A'. The intervening sections of the evolutionary history can be thought of as a series of stems. During the evolutionary history of the lineage changes between successive nodes may be characterised by the appearance of new characters (apomorphies) such as, in this case, feathers. This entire lineage will have a sister group, in this case designated as crocodiles. It needs to be pointed out to those readers more familiar with the crown, total and stem group concept of Hennig (see Jefferies, 1979) that there is partial overlap between phylogenetic systematics and Phylogenetic Nomenclature usage. In phylogenetic systematics there are the concepts of crown, total and stem groups. The crown group is the latest common ancestor plus all its descendants of a Recent group. The total group consists of all species more closely related to the crown group than to the Recent sister group and the stem group is the extinct paraphyletic assemblage leading up to the origin of the crown group.

In Phylogenetic Nomenclature there is no requirement that the node specify a crown group. In other words all crown groups are node-based groups but the converse is not true. Under Phylogenetic Nomenclature it is perfectly possible to recognise an entirely extinct node-based group. Similarly, all total groups are stem-based but not all stem-based clades are total groups. With this clarified we will continue within the terminology of Phylogenetic Nomenclature.

Under a node-based definition (Fig. 1b) the name 'Aves' is the name given to a clade stemming from the most recent common ancestor of (say) *Struthio camelus* and *Corvus corax*. Or, if we wish to strip out direct reference to ancestors, it may be expressed as on the right here as the least inclusive clade containing *Struthio camelus* and *Corvus corax*. The notation in parentheses below the tree is a suggestion for abbreviating the definition (Aves must have *Struthio camelus* **and** *Corvus corax*). *Struthio camelus* (the ostrich) and *Corvus corax* (the raven) are called specifiers. They serve exactly the same function as Linnaean types except their characters do not define the clade.

We could actually name as many birds to serve as specifiers as we wanted but two is the minimum. No matter what other birds such as sparrows, gannets or vultures are included, in this example the word Aves is constructed around the ostrich and the raven. Clade membership may expand or contract to include or exclude these extra taxa — and this depends upon the phylogeny — but the ostrich and raven must always be included. So in Phylogenetic Nomenclature we now have two types (specifiers).

In the stem-based definition (Fig. 1c) Aves is named as the clade consisting of *Struthio camelus* and all organisms sharing a more recent common ancestor with *Struthio camelus* than with *Crocodylus niloticus*. Or, again without specific reference to ancestors, as the most inclusive clade containing *Struthio camelus* but not *Crocodylus niloticus*. Here there is an included taxon—*Struthio camelus*—and an excluded taxon—*Crocodylus niloticus*. So again we have a reference to specifiers but this time one is included and one is specifically excluded. The stem-based definition states that a taxon is more closely related to one specifier or type than another. The shorthand notation is given beneath the diagram. So again we have two types (specifiers).

In the apomorphy-based definition (Fig. 1d) — with its abbreviation shown below the diagram — the definition is a clade stemming from the first species to possess the

character *feathers* synapomorphic with that in *Struthio camelus*. Or a clade diagnosed by *feathers* homologous with those in *Struthio camelus*. Here there is one specifier taxon and one specifier character. Two types (specifiers) but one is conceptually quite different from the other.

In order to name a clade there must be some phylogenetic hypothesis before us. Names are then applied in the context of that hypothesis. Should the hypothesis change then the taxonomic content implied by a name may change but the important point made by advocates of the PhyloCode is that the name is clear since it based on an explicit definition (stem-, node- or apomorphy-based), it is unique and stable since the taxon name is fixed to specifiers (taxa or characters).

To explain this, consider Figure 2 and the names Sarcopterygii and Choanata, and take the phylogeny of the left-hand column as the phylogeny current when the names Sarcopterygii and Choanata were coined. Under the PhyloCode the original author of the name would have had three choices of definition (node-, stem- or apomorphy-based) and choices of reference taxa. In this example let us say that the coelacanth and a frog (to represent a tetrapod) were used as specifiers for the node-based definition (Fig. 2A₁) of Sarcopterygii and the lungfish and frog were used as specifiers for Choanata (the use of one anchor taxon — in this case the frog — for different definitions has been advocated by Lee, 1999a). Alternative phylogenies shown to the right (Figs. 2A₂ and 2A₃) would result in different taxon membership.

Let us say that the name had been introduced under the stem-based definition: that is, Sarcopterygii is the name given to the clade that includes the coelacanth but not the perch (an actinopterygian) and that Choanata is the name given to the clade including the frog but not the coelacanth (Fig. 2B₁). The consequences of subsequent phylogenetic revisions are shown to the right (Figs. 2B₂ and 2B₃).

Lastly the same exercise (Figs. 2C₁– 2C₃) can be applied to apomorphy-based naming, with the exception that there would be ambiguity about the homology of fleshy fins under the second (Fig. 2C₂) phylogenetic hypothesis so that the name Sarcopterygii could not be unambiguously applied in this case.

There are a number of features of this exercise to notice as properties of Phylogenetic Taxonomy. Firstly, a shift in taxon membership with changing ideas of phylogeny is perfectly acceptable to the PhyloCode since principle 1 states that: *The primary purpose of taxon names is to provide a means of referring to taxa, as opposed to indicating their characters, relationships, or membership* [my emphasis].

Second, ideas of relationships can vary substantially (e.g. the three theories given here) but, with one exception (Fig. 3C₂, involving the apomorphy-based definition) there will always be some position at a node or along an internode on a phylogeny where the name Sarcopterygii will apply. That is also acceptable since principle 1 states: *The primary purpose of taxon names is to provide a means of referring to taxa, as opposed to indicating their characters, relationships, or membership*.

The third feature is that the name is applied to a phylogeny without reference to why that phylogeny should have been chosen. Again this is perfectly consistent with the aims of the PhyloCode: *The primary purpose of taxon names is to provide a means of referring to taxa, as opposed to indicating their characters, relationships, or membership*.

It is important to notice that a change in the phylogenetic hypothesis will cause a *different* change in the taxon membership and its hierarchical relationship to names

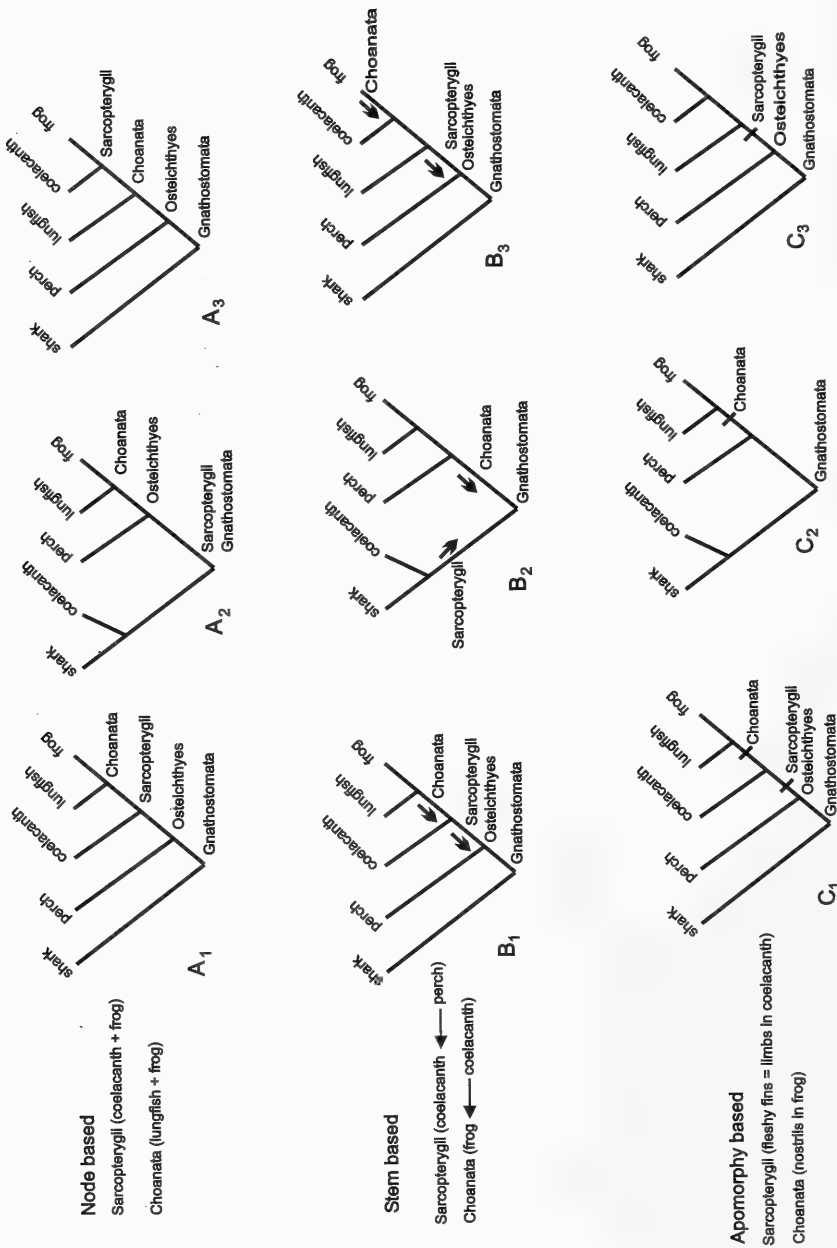


Figure 2. Stability and synonymy. In this diagram three hypotheses of the relationships of coelacanths to other vertebrates are given. That shown in the left column after Forey (1980), centre column after Lagos (1979), and that in the right column after Schultz (1987). The effects of the different taxonomic content of the names Choanata and Sarcopterygii can be mapped across each of the three definitions A — node based, B — stem based (arrows on trees are a convention used by Sereno, 1999), C — apomorphy based. Note that in C₂ and C₃ the names Sarcopterygii and Choanata could not be used because of problems of interpreting the specifier character as an homology (see text and Fig. 5 for discussion). In B₃ 'Choanata' is co-extensive with the frog and presumably would not be named.

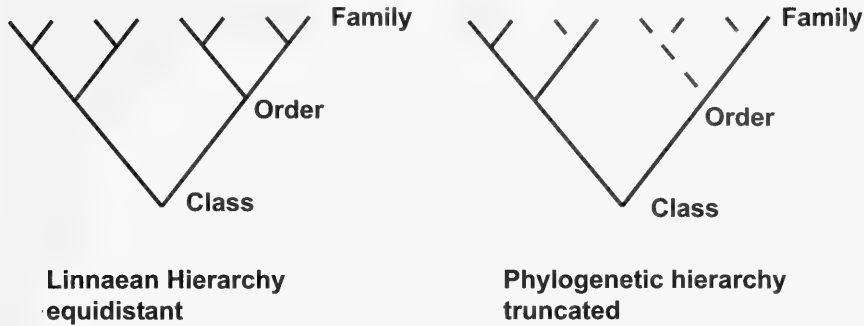


Figure 3. Truncated hierarchies and redundancy. A Linnaean hierarchy is symmetrical where all terminal taxa can be assigned inclusive rank. The hierarchy on the right approximates to many phylogenetic hypotheses where extinction (dotted lines) or reality means that some ranks for some taxa will be redundant.

of other clades depending on whether the name *Sarcopterygii* is node- or stem-based. Therefore, the PhyloCode makes it mandatory that the intended definition is stated when a name is proposed (see below).

Another phenomenon can be noted as a result of changing hypotheses when using the node-based name. This is the fact that the hierarchical relationships of names can reverse. Thus in Fig. 2A₁ Choanata is more exclusive than *Sarcopterygii* whereas in Fig. 2A₃ the reverse is true. Again, this is not a particular problem for the PhyloCode since it is not concerned with rank. However, the PhyloCode does suggest ways in which this and situations like it can be avoided: this is done by adding exclusion clauses or qualifiers to the definition. Thus, in this case we could say that the name Choanata is a name given to a clade including the lungfish and the frog but *excluding* the coelacanth. This would mean that in the phylogeny represented by Fig. 2A₃ the name Choanata could not be used.

The final point to be outlined concerns synonymy and homonymy. To some extent these terms mean the same in the PhyloCode as in Linnaean Taxonomy. Thus homonymy is an instance where the same name is used for different taxa and synonymy is an instance where different names are used for the same taxon. But the meaning of homonymy has an additional dimension in the PhyloCode because of the different potential ways of defining a group (stem-, node- or apomorphy-based—see PhyloCode Note 13.2.3). With regard to synonymy there is the possibility of two names specifying the same taxon but since they may be defined in different ways (e.g. stem- and node-based) they may both be valid (PhyloCode, Note 14.1.2).

Practicalities and Governance

The PhyloCode will be part of the activities of '*The Society for Phylogenetic Nomenclature (SPN)*, an international, non-profit organization with no membership restrictions. Two committees of the SPN have responsibilities that pertain to this Code: the International Committee on Phylogenetic Nomenclature (ICPN) and the Registration Committee. [Note: These organizations do not yet exist. They will be established before the PhyloCode is implemented].'

Thus the PhyloCode proposes a registration system whereby clade names are submitted electronically. In order to register a name certain pieces of information need to be provided (those marked with an asterisk being mandatory and others optional):

'*Definition type** (node based, stem based, apomorphy based, other . . .)
*Phylogenetic definition**
*List of specifiers**, at least two being mandatory
Qualifying clause
Reference phylogeny (bibliographic reference, URL, or Accession number in public repository)'

These then, are the aims and basic workings of the PhyloCode. Of course, there are many other provisions in the Code designed to streamline the naming process (orthography and authorship) and to deal with particular situations (e.g. hybrids). I encourage all to visit the PhyloCode website to read the full text.

Part 2. Commentary

Phylogenetic Nomenclature already has a history, with the main arguments and suggestions for its implementation having been put forward in a series of papers (e.g. De Queiroz & Gauthier, 1990, 1992, 1994; Rowe & Gauthier, 1992; Lee, 1998, 1999a,b; Sereno, 1999; Cantino, 2000). Counterviews have been expressed in others (Lidén & Oxelman, 1996; Dominguez & Wheeler, 1997; Moore, 1998; Benton, 2000; Nixon & Carpenter, 2000).

Supporters of Phylogenetic Nomenclature argue that because Linnaean Taxonomy is based on the concept of rank it is ill-suited to expressing our changing ideas of phylogenetic relationships between species. Rank is problematic because the application of a rigid rank system leads to redundancy and instability. Redundancy is introduced because the Linnaean hierarchy is equidistant: that is to say, every taxon is included in a continuity of ranks from Genus to Kingdom (although this is not stated as mandatory in the Zoological Code). This may be perfectly satisfactory should the phylogeny be perfectly symmetrical (Fig. 3 left). But reconstructed phylogenies are not like this, either because history is genuinely asymmetrical or because of extinctions; they can appear to us as truncated hierarchies (Griffiths, 1973). This means that there are empty ranks (Fig. 3 right). Or to express this in another way: in some parts of the phylogenetic tree the Family rank is equivalent in scope and content to the Order rank elsewhere. Thus, confining oneself to the Recent world, ranks can become redundant in monospecific groups; for example there is nothing more implied by the Family Hominidae than by the Genus *Homo* or the Species *sapiens*.

Rank has been used to imply some level of morphological divergence either in amount or kind. The boundaries of ranks (Genus, Family, Order, etc.) are traditionally, and still usually, judged on morphological divergence. We expect the morphological gaps between Orders to be larger than those between Families, and in turn the latter to be larger than the gaps between Genera. At the same time we expect the variations within Orders than to be greater than those within Families, and these to be greater than the variations within Genera. How much variation and how large a gap is appropriate for families, genera, etc. is usually unstated and is indeed undefinable.

Rank has also been used to signify the kind or quality of divergence to ascribe rank. The action of separating birds as Class Aves equivalent to Class Reptilia is only because of the *kinds* of characters by which birds differ from reptiles. Birds have characters such as wings, feathers and air sacs that enable them to exist in a different adaptive zone. These are deemed by mutual consent to be Class characters and because of this the paraphyletic rubble left behind — the reptiles — also has to have Class status.

So, I have some sympathy with Phylogenetic Nomenclature in the desire to seek a rank-free classification. But there are ways around the problem which do not involve the adoption of a PhyloCode (e.g. Crane & Kenrick, 1997). This is the annotated Linnaean system which by the use of a few conventions (Nelson, 1974; Patterson & Rosen, 1977; Wiley, 1979) can absorb the problems caused by rank yet allow those who wish to retain rank to do so for their own purposes.

It must be remembered that the abolition of ranks can have some rather unfortunate consequences for many people who compile 'diversity indices' based on generic counts or family counts. Here, abolition of rank would immediately affect some palaeontologists and many people studying biodiversity. It is apparently common practice (Dr Sandy Knapp, pers. comm.) in biodiversity inventories to simply note the existence of a representative of a family or genus, because the organism may be new and can only be recognised initially on family characters. With rank abandoned counts are abandoned.

Types/Specifiers

It is difficult to see why Phylogenetic Nomenclature has adopted the new term 'specifier(s)' when, in reality the 'type concept' is still with us, only in a more complicated fashion. The types in Phylogenetic Nomenclature are the specifiers (species, specimens or synapomorphies) *coupled with* a phylogenetic hypothesis. In practice there is no difference between specifiers and types, except that in Phylogenetic Nomenclature it is necessary to cite at least two for every name: node-based (A + B), stem-based (A ← B), apomorphy-based (synapomorphy *a* in A). Under Phylogenetic Nomenclature rules we have the additional complication of the phylogeny, because the name is only to be used within the context of a phylogeny (*PhyloCode, Division 1, Principles, number 6*). As De Queiroz & Gauthier (1992) pointed out, it is always possible to make a mistake about the contents of a clade (the taxa included) and the diagnostics (the characters by which it is recognised) — but it is not possible to make a mistake about the phylogenetic definition. Because of the way names are constructed under phylogenetic taxonomy this must be true. However, it needs to be pointed out that it is not the phylogeny that is important but only the *part* of the phylogeny that is relevant to the name (that portion which includes the specifiers). Other taxa which may have been part of the original phylogeny when the name was erected are free to wander in and out of the named clade. The specifiers and the part of the phylogeny used in erecting the name suffer from the same problem as Linnaean types — they are acting as focal points. How widely or narrowly their naming influence spreads is entirely at the whim of systematists erecting new phylogenies in precisely the same way as in Linnaean taxonomy. Therefore the substitution of types by specifiers (*PhyloCode, Preface*) seems completely unnecessary.

Of course in Linnaean taxonomy the type concept is ultimately tied to characters, attributes of specimens which we can see.

When to name

One of the objections raised against Linnaean Taxonomy is that it is often difficult to name clades without causing a cascade of name changes through rank-ending changes. This, phylogenetic taxonomy claims, will result in clades for which there is much evidence being un-named, and taxonomy becoming out of step with phylogenetic knowledge. Therefore, the unrestricted ability to name clades is seen as an advantage (*PhyloCode, Preface*). However, phylogenetic taxonomy also acknowledges that not all clades need to be named. At first sight this commonsense view may seem odd, considering that the paramount objective of phylogenetic nomenclature is to name clades. Some reasons for naming a clade are given as recommendations in the *PhyloCode*: '*Criteria that influence the decision whether to name a clade include level of support, phenotypic distinctiveness, economic importance, etc.*' (Preface, paragraph 6). I am not sure what 'etc.' covers, but taking the three that are given I can make some comment.

Level of support. This means that the *PhyloCode* recommends that we only name clades that are judged to be soundly based with good support. What might this mean? Numbers of synapomorphies, Bremer support, bootstrap support, jackknife support (first order jackknife or second order jackknife), consistency index, retention index, rescaled consistency index, resistance to successive weighting, heavy implied weighting scores, and so on.

Phenotypic distinctiveness. This seems to me to be a curious criterion to use, since much of the *PhyloCode*'s objection against Linnaean Taxonomy is based on the fact that the classical type system does not specify how far from the type the name applies, i.e. how distinctive taxa have to be from a name-bearing type before they become a new genus, family or whatever. Yet, here the *PhyloCode* seems to be saying the same thing—only in relation to clades. If we are only going to name clades according to phenotypic distinctiveness then this seems to advocate an apomorphy-based definition. We name clades with reference to one or more apomorphies which are judged to be 'significant'. However, apomorphy-based naming is less favoured than the other two definitions because of the subjective assessments of characters; this has been emphasised by Rowe & Gauthier (1992) using the naming of Mammalia as an example.

Economic importance. Well, there are more than enough measures here (e.g. contribution to Gross National Products; financial impact on social conditions, health and welfare; cost-benefit for international aid) but how these are going to be evaluated is difficult.

The point is that the advocates of phylogenetic taxonomy really do not have any more precise reasons for naming a group than do followers of Linnaean Taxonomy and to include advice in the *PhyloCode* registers a precision which is both unnecessary and undesirable.

How to name

The kind of definition which should be applied in any given clade has been discussed in the context of phylogenetic taxonomy on many occasions (e.g. Lee,

1999b; Sereno, 1999). Here we meet a curiously illogical rationale, since the reason for choosing one kind of definition over another (node-based, stem-based, apomorphy-based) is apparently in order to 'stabilize the taxonomic content of a taxon more than another in the face of local changes in relationships' (Sereno, 1999, p. 329). However, taxonomic content is not the primary purpose of Phylogenetic Nomenclature (*PhyloCode, Division 1. Principles*) and it is therefore unclear why this should be an issue. However, anyone practicing Phylogenetic Nomenclature *must* specify which definition is to be used (see *Practicalities and Governance* above) and therefore some decision has to be made. Several suggestions have been put forward and, for me, the most thorough discussion of this subject is that by Sereno (1999) who advises in which circumstances it may be best to use node-, stem- or apomorphy-based names as well as offering advice on selecting specifiers (types). Despite all the discussion around this subject, the final decision must rest on some estimate as to the resolution, the strength of phylogenetic signal and the potential durability of the phylogeny (crudely put: will those taxa stay in place with the introduction of new data?). In other words some evaluation of the quality of the phylogeny is required. Not surprisingly, Phylogenetic Nomenclature is mute in offering guidelines since there are no agreed criteria amongst the systematic community at large¹. Therefore while the name of a taxon may well remain stable the applicability of that name within classifications may be decidedly unstable.

There are instances where names can be considered unstable. PhyloCode (Article 15. Conservation) allows that, under certain circumstances involving synonymy and homonymy, authors may apply to the International Committee on Phylogenetic Nomenclature to have names conserved and suppressed. Thus, suppose that with reference to Figure 2A₂ Sarcopterygii had been defined as node-based—Sarcopterygii (coelacanth and frog)—and Gnathostomata had been similarly defined (coelacanth and frog). These are clearly synonyms. Let us further imagine that even though date precedence favoured Gnathostomata common usage suggested Sarcopterygii as a more appropriate name (in principle this is similar to the 'prevailing usage' rules of the Zoological Code). As I understand the PhyloCode, Sarcopterygii could be conserved and Gnathostomata suppressed. However, a later author might resurrect Gnathostomata by using a different definition (e.g. Gnathostomata [frog ← lamprey]). This is hardly stability.

Linking a name with a particular phylogeny also leads us into theories of homology, since it is precisely such theories which enable us to recognise the phylogeny in the first place. This is not without difficulty for phylogenetic taxonomy, as may best be explained with reference to the apomorphy-based definition. Historically, in Linnaean Taxonomy apomorphy-based names are those which have caused most confusion, as Rowe & Gauthier (1992) point out in the context of the naming of Mammalia. However, of all of the definitions advocated by phylogenetic

¹There have been many indices devised to try to assess the support of cladograms/phylogenetic trees such as Bremer support, Bootstrap, Jackknife, consistency index, retention index, rescaled consistency index, permutation tail probability tests (and derivatives). All these have their fields of applicability but they are really designed to test the strength of the hierarchical signal, not the stability of the phylogenetic hypothesis which may only be done *a posteriori* with more data. And the problem is compounded if the analysis is carried out under Maximum Likelihood methods — as is often the case with molecular phylogenies — because here the tests applied are undertaken in the context of a particular model of character evolution.

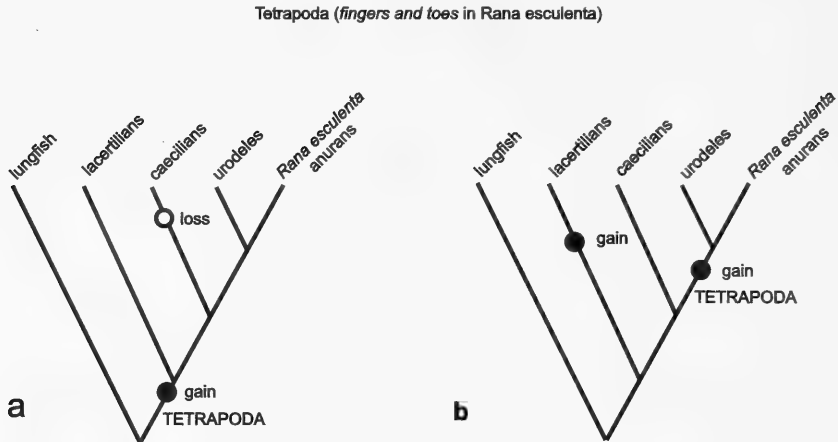


Figure 4. Apomorphy-based definitions can suffer from alternative equally parsimonious optimisation of potential specifier characters. Here it is suggested that Tetrapods are defined with the specifier fingers and toes. In this phylogeny the taxa lacertilians, urodeles and frogs have fingers and toes but caecilians and lungfish do not. a. Under this optimisation the apomorphy is assumed to have been gained once and the name can be used. b. Alternative optimisation in which fingers and toes are not homologous in lacertilians and the one hand and urodeles+anura on the other.

nomenclature, apomorphy-based naming is the only one which makes specific reference to characters observable in the objects of study (i.e. organisms). But even here there are problems because characters are homologies and homologies are theories. This aspect may not be fully apparent to those taxonomists unfamiliar with phylogenetic systematics. Consider an apomorphy-based definition which may be proposed as 'Tetrapoda is the name given to the clade consisting of all those animals with fingers and toes homologous with those in *Rana esculenta*'. The problem arises over the word homologous. In phylogenetic systematics an homology is a theory and is equivalent to synapomorphy (shared derived character). Let us say that we had arrived at the phylogeny of organisms shown in Figure 4 where lungfishes and caecilians lack fingers and toes whereas lacertilians (mostly), urodeles and *Rana esculenta* have them. There are two ways in which we may imagine the characters 'fingers and toes' to have evolved given this phylogeny. Or, in cladistic terminology, there are two ways of optimising this character on this tree. We could suggest that 'fingers and toes' was gained in the common ancestor of the group lacertilians + *Rana esculenta* and subsequently lost in caecilians. This involves two evolutionary steps (or transformations): one gain and one loss (Fig. 4a). In this case 'fingers and toes' is an homology (shared derived character or synapomorphy) which has been subsequently lost in some members (caecilians) of this group. This type of optimisation is called accelerated transformation (ACCTRAN) because it places the first transformation — no fingers and toes → fingers and toes — at the most inclusive hierarchical level on the tree. One alternative is shown in Figure 4b. Here, it is assumed that 'fingers and toes' is a character that was gained twice — once in lacertilians and again in the common ancestor of the group urodeles + *Rana esculenta*. This optimisation is called delayed transformation (DELTRAN) because it delays the transformation to the most exclusive positions in the hierarchy. In this case 'fingers and toes' is not regarded

as a synapomorphy because it has arisen twice and therefore cannot be considered an homology, and presumably would not be used as an apomorphy-based specifier. However, these two theories of character evolution are equally parsimonious and we would need additional information to choose one alternative as more likely than the other. In order for there to be no ambiguity we need a qualifying phrase to be added to our apomorphy-based definition of Tetrapoda as 'all those animals sharing fingers and toes homologous with those of *Rana esculenta* under the optimising procedure of accelerated transformation'. This is not a particularly utilitarian usage. I admit the example may be contrived: but if fingers and toes were substituted by a particular gene sequence then it may not be easy to argue for or against homology. Perhaps it will be necessary to restate the apomorphy-based definition of Tetrapoda as 'all those animals sharing fingers and toes homologous with those of *Rana esculenta* under any optimising procedure'.

Pain — no gain

The PhyloCode proposes that biologists will gain clarity, efficiency and stability when accepting its premises and adopting its methodology. Advocates of the PhyloCode also claim that these gains are likely to be appreciated by those not interested in phylogeny or nomenclature (Cantino *et al.*, 1999); it is clear that the intention is for the PhyloCode to be understood and used by non-systematists. We need, therefore, to assess what that gain is and at what cost it is to be achieved within the context of biology in general. Cost can only be measured against some standard and therefore some comparison with Linnaean Taxonomy is essential. With respect to clarity and stability there may be no difference between Phylogenetic Nomenclature and Linnaean taxonomy. Within Phylogenetic Nomenclature a name is stable within the context of its specifiers. But so are Linnaean names based on types. The specimen BMNH 1853.11.12.111 is and will remain the name-bearing type (lectotype) of *Clupea harengus*, just as *Struthio camelus* and *Corvus corax* could be regarded as specifiers of the node-based Aves under the PhyloCode. Under Linnaean taxonomy suprafamilial names do not have formal name-bearing types but they may be said to have specifiers. In 1861 T.H. Huxley erected the name *Crossopterygii* for an assemblage of fossil fishes including *Polypterus*, *Gyroptychius*, *Holoptychius*, *Osteolepis*, *Dipterus*, *Phaneropleuron* and *Macropoma*. Two or more of these fishes are the specifiers, if you like, of the name *Crossopterygii* Huxley, 1861. In the years immediately following Huxley's work the content or membership of the *Crossopterygii* changed dramatically. This was not surprising because some or all of these fishes were implicated in the ancestry of tetrapods and therefore authors were struggling with a paraphyletic group. However, any scientist foolish enough to struggle with such a group (and I count myself amongst them) is forced to go back to Huxley (1861) to learn the membership of the group and the observations which were used in its recognition. Under phylogenetic taxonomy exactly the same would happen. We cannot gather any relevant details directly from the name Aves (*Struthio camelus* and *Corvus corax*) Joe Doe. We are forced to examine the contents of the clade to understand its membership and presumably we would also be interested in how it was recognised.

When Günther (1871) examined *Crossopterygii* Huxley, 1861 he decided that the relationships of the included taxa were not as Huxley opined. The phylogeny had

changed and so had the membership of Crossopterygii. But this is precisely what happens under Phylogenetic Nomenclature also (e.g. Sarcopterygii in Fig. 2). If we want to understand the systematic history of a particular taxon we still have to examine all of the phylogenies under which that name has been used because the name itself may be compatible with more than one phylogenetic hypothesis. Thus the claim by phylogenetic taxonomy for clarity and stability within the context of why systematists need the name in the first place is at best illusionary and at worse misleading. There is nothing to be gained.

The pain is administered in several ways. First, for the sake of clarity new names may have to be coined for very familiar groups. The PhyloCode is very clear to point out that this need not be so and suggests that existing names can be redefined under PhyloCode conventions by appending a suffix '[P]', meaning that this name is to be used in the sense of phylogenetic taxonomy (Cantino, 2000, p. 87). While this is perfectly feasible, we may ask — will the redefinition be understandable to the many non-systematists who use classifications as their comparative framework? The PhyloCode (Article 11.8) does insist that 'when a clade name is converted from a preexisting genus name or is a new or converted name derived from the stem of a genus name, the definition of the clade name must use the type species of that genus as an internal specifier.' However, it makes no recommendations as to suprageneric names. Things can go awry. For instance, Laurin (1998) redefined the taxon Anthracosauria under Phylogenetic Nomenclature such that it no longer included its Linnaean type genus *Anthracosaurus*. To use the same name in two completely different contexts will surely lead to confusion, and it puts the onus on the non-systematist to find out the difference or overlap in the meaning of the names. As taxonomists we are hardly serving the wider biological community by this duality and potential confusion.

Second, the PhyloCode is agnostic about characters, relationships, or membership. However, this is precisely the important information which may be of importance to comparative biologists. Thus the retrieval of information may not be as easy as the PhyloCode suggests.

Third, changing hypotheses of relationship will mean that names are used and disused according to the phylogeny in fashion at that time (in Linnaean taxonomy the name will remain the same but the membership may change). This is hardly stability.

Fourth, the PhyloCode names clades, each of which is defined as 'a monophyletic group of species' (PhyloCode, *Preface*). This means that only monophyletic groups be named (there is no other kind of clade). While this is a desirable endpoint we are very far from achieving that phylogenetic resolution. There remain vast branches in the tree of life where monophyly has yet to be demonstrated. Phylogenetic Nomenclature will leave these assemblages of taxa un-named. I find myself in the rather uncomfortable position of being one who agrees strongly that monophyletic groups are the only real biological entities worth consideration and I would never argue for the retention of paraphyletic taxa. But I am also mindful of the fact that for many biologists potentially non-monophyletic groups (e.g. Bryophyta) still serve a useful purpose for their own reasons of communication (say, in ecological studies). Thus we will still have to live with Linnaean names alongside PhyloCode names. The annotated Linnaean system (Wiley, 1979)

can cope with phylogenetic uncertainty to satisfy the systematists without denying names that may be useful elsewhere.

Fifth, adoption of the PhyloCode can and probably would lead to a rapid inflation of names because, quite naturally, individual workers will wish to name the hard-won results of their own phylogenetic investigations. I see this most likely to happen in two areas; molecular systematics and with newly discovered fossil taxa. With respect to the latter de Queiroz & Gauthier (1992, p. 457) recognised this but claimed that since it is palaeontologists who are most concerned with phylogenies they should live with this problem, which they dismissed as minor since 'there are already more taxon names than anyone can remember — then naming clades seems preferable to leaving them unnamed . . .'. Thus, in one sense, phylogenetic systematists get what they deserve. But in another sense, phylogenetic systematists are not serving the wider biological community by introducing a plethora of names, each with their own definitions which need to be understood before they can be used by others.

Conclusion

The intention of the PhyloCode is to name clades and it is therefore free of empirical content (with the possible exception of the apomorphy-based definition). In trying to name hypotheses the PhyloCode puts the onus on the users of the names to assess the confidence we may have in one particular clade or another before selecting a name that matches that choice. Users of Linnaean taxonomy are, of course, forced to do the same, but no name changes need be required. The alleged clarity, efficiency and stability claimed by the PhyloCode do not stand critical examination and it needs to be asked what exactly has been gained. More importantly the biological community will have to judge whether the alleged gains are worth the undoubted pain.

Acknowledgements

I wish to thank Philip Cantino and Kevin de Queiroz, both of whom were kind enough to read the first part of this essay and correct some of my errors of fact about the PhyloCode. Philip Cantino's further comments on my commentary were also very useful to me and are acknowledged here—of course, disagreements still remain.

References

- Benton, M.J. 2000. Stems, nodes, crown clades, and rank-free lists: is Linnaeus dead? *Biological Reviews*, **75**: 633–648.
- Cantino, P.D. 2000. Phylogenetic nomenclature: addressing some concerns. *Taxon*, **49**: 85–93.
- Cantino, P.D., Byrant, H.N., De Queiroz, K., Donoghue, M.J., Eriksson, T., Hillis, D.M. & Lee, M.S.Y. 1999. Species names in phylogenetic nomenclature. *Systematic Biology*, **48**: 790–807.
- Crane, P.R. & Kenrick, P. 1997. Problems in cladistic classification: higher-level relationships in land plants. *Aliso* **15**: 87–104.
- De Queiroz, K. & Gauthier, J. 1990. Phylogeny as a central principle in taxonomy: phylogenetic definitions of taxon names. *Systematic Zoology*, **39**: 307–322.
- De Queiroz, K. & Gauthier, J. 1992. Phylogenetic taxonomy. *Annual Review of Ecology and Systematics*, **23**: 449–480.
- De Queiroz, K. & Gauthier, J. 1994. Towards a phylogenetic system of biological nomenclature. *Trends in Ecology and Evolution*, **9**: 27–31.

- Dominguez, E. & Wheeler, Q.D.** 1997. Taxonomic stability is ignorance. *Cladistics*, **13**: 367–372.
- Forey, P.L.** 1980. *Latimeria*: a paradoxical fish. *Proceedings of the Royal Society of London, B*, **208**: 369–384.
- Griffiths, G.C.D.** 1973. Some fundamental problems in biological classification. *Systematic Zoology*, **22**: 338–343.
- Günther, A.C.L.G.** 1871. Description of *Ceratodus*, a genus of ganoid fishes, recently discovered in the rivers of Queensland, Australia. *Philosophical Transactions of the Royal Society of London*, **161**: 511–571
- Huxley, T.H.** 1861. Preliminary essay upon the systematic arrangement of the fishes of the Devonian epoch. *Memoirs of the Geological Survey of the United Kingdom*, **Decade 10**: 1–40.
- Jefferies, R.P.S.** 1979. The origin of chordates — a methodological essay. Pp. 443–477 in House, M.R. (Ed.), The origin of major invertebrate groups. *Systematics Association Special Volume Series*, no. 12.
- Lagios, M.D.** 1979. The coelacanth and the Chondrichthyes as sister groups: a review of shared apomorph characters and a cladistic analysis and reinterpretation. *Occasional papers of the California Academy of Sciences*, **134**: 25–44.
- Laurin, M.** 1998. The importance of global parsimony and historical bias in understanding tetrapod evolution. Part 1. Systematics, middle ear evolution and jaw suspension. *Annales des Sciences Naturelles, Zoologie et Biologie Animale* **19**: 1–42.
- Lee, M.S.** 1998. Phylogenetic uncertainty, molecular sequences, and the definition of taxon names. *Systematic Biology*, **47**: 719–726.
- Lee, M.S.Y.** 1999a. Reference taxa and phylogenetic nomenclature. *Taxon*, **48**: 31–34.
- Lee, M.S.Y.** 1999b. Stability of higher taxa in phylogenetic nomenclature — some comments on Moore (1998). *Zoologica Scripta*, **28**: 361–366.
- Lidén, M. & Oxelman, B.** 1996. Do we need 'phylogenetic taxonomy'? *Zoologica Scripta*, **25**: 183–185.
- Moore, G.** 1998. A comparison of traditional and phylogenetic nomenclature. *Taxon*, **47**: 561–579.
- Nelson, G.** 1974. Classification as an expression of phylogenetic relationships. *Systematic Zoology*, **22**: 344–349.
- Nixon, K.C. & Carpenter, J.M.** 2000. On the other 'Phylogenetic Systematics'. *Cladistics*, **16**: 298–318.
- Patterson, C. & Rosen, D.E.** 1977. Review of ichthyodectiform and other Mesozoic teleost fishes and the theory and practice of classifying fossils. *Bulletin of the American Museum of Natural History*, **158**: 81–172.
- Rowe, T. & Gauthier, J.** 1992. Ancestry, paleontology, and definition of the name Mammalia. *Systematic Biology*, **41**: 372–378.
- Schultze, H.-P.** 1987. Dipnoans as sarcopterygians. Pp. 39–74 in Bemis, W.E., Burggren, W.W. & Kemp, N. (Eds.), *The biology and evolution of lungfishes*. Alan R. Liss, New York.
- Sereno, P.C.** 1999. Definitions in phylogenetic taxonomy: critique and rationale. *Systematic Biology*, **48**: 329–351.
- Wiley, E.O.** 1979. An annotated Linnaean hierarchy, with comments on natural taxa and competing systems. *Systematic Zoology*, **28**: 308–337.

Case 3171***Cryphops* Richter & Richter, 1926 (Trilobita): proposed conservation**

D.J. Holloway

Museum Victoria, PO Box 666E, Melbourne, Victoria 3001, Australia
(e-mail: dhollow@museum.vic.gov.au)

K.S.W. Campbell

*Department of Geology, Australian National University, PO Box 4,
Canberra, ACT 0200, Australia* (e-mail: ken.campbell@anu.edu.au)

Abstract. The purpose of this application is to conserve the name *Cryphops* Richter & Richter, 1926 for a genus of Late Devonian trilobites (family PHACOPIDAE). This name is a junior objective synonym of *Gortania* Cossmann, 1909, which had been proposed as a replacement for *Microphthalmus* Gortani, 1907 non Mecznirow, 1865. *Cryphops* has been universally accepted as the valid name for the taxon whereas *Gortania* has never been used as a valid name since its establishment and its suppression is proposed.

Keywords. Nomenclature; taxonomy; Trilobita; phacopoid trilobites; PHACOPIDAE; *Cryphops*; Devonian.

1. Gortani (1907, p. 229) proposed the name *Microphthalmus* as a subgenus of *Trimerocephalus* McCoy, 1849, and listed a number of species including *Phacops cryptophthalmus* Emmrich, 1844 (p. 15), *P. (Trimerocephalus) acuticeps* Kayser, 1889, *P. mastophthalmus* Reinhard Richter, 1856, and two new species *Trimerocephalus (Microphthalmus) pseudogranulatus* and *T. (M.) roemeri*; the last two were regarded by Rudolf Richter & Emma Richter (1926, p. 159) as junior synonyms of *Phacops cryptophthalmus*. Gortani did not designate a type species for *Microphthalmus*.

2. In reviewing Gortani's paper, Cossmann (1908, p. 245) briefly noted the erection of *Microphthalmus*, mentioning only *Phacops cryptophthalmus* as belonging to the taxon; his intention in listing only one species is not clear, but the statement does not qualify as the designation of a type species nor would it had he explicitly excluded all the other originally included specific names, since fixation by elimination does not constitute type fixation (Article 69.4 of the Code).

3. In a brief statement the following year, Cossmann (1909, p. 67) proposed the name *Gortania* as a replacement for *Microphthalmus* Gortani, 1907 because the latter is a junior homonym of *Microphthalmus* Mecznirow, 1865 (p. 334), a genus of polychaete worms. Again no type species was designated for *Gortania*.

4. Vogdes (1925, p. 114) subsequently designated *Phacops cryptophthalmus* Emmrich, 1844 as type species of *Microphthalmus* Gortani, 1907; this serves also as type species designation for *Gortania* (Article 67.8), although Vogdes did not mention *Gortania*.

5. Richter & Richter (1926, p. 157) proposed *Cryphops* as a subgenus of *Phacops*, naming *Phacops cryptophthalmus* as type species; *Cryphops* is thus a junior objective synonym of *Gortania*. Richter & Richter listed the preoccupied name *Microphthalmus* Gortani, 1907 as a synonym of *Cryphops*, but were apparently unaware of the existence of *Gortania* or that Vogdes had the previous year fixed *P. cryptophthalmus* as the type of *Microphthalmus* Gortani.

6. In the *Treatise on Invertebrate Paleontology* (1959, p. 463), Richter, Richter & Struve listed *Microphthalmus* Gortani, 1907 and *Gortania* Cossmann, 1909 as objective synonyms of *Cryphops*, and indicated that an application by Struve to the Commission to conserve *Cryphops* was pending. We are advised by Dr P.K. Tubbs (Executive Secretary of the Commission) that no such application was ever received.

7. Since its erection *Cryphops* has been accepted universally as the valid name for the taxon, which has been regarded either as a subgenus of *Phacops* or more recently as an independent genus. Authors who have used the name include Reed (1927), Delo (1935), Hupé (1953), Maksimova (1955), Richter, Richter & Struve (1959), Kramarenko & Maksimova (1960), Osmólska (1963), Lütke (1968), Hahn & Hahn (1975), Chlupáč (1977), Struve (1989), Feist & Schindler (1994) and Crônier & Feist (2000) — this list is not exhaustive. On the other hand, to the best of our knowledge *Gortania* has never been used as a valid name.

8. The Code seeks to preserve the stability of established usage of names by ensuring that a younger name in prevailing usage is not displaced by an older but long-unused name (Article 23.9). However, this Article cannot be automatically applied in the present case as the unused senior synonym (*Gortania*) was proposed after 1899.

9. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to suppress the generic name *Gortania* Cossmann, 1909 for the purposes of the Principle of Priority but not for those of the Principle of Homonymy;
- (2) to place on the Official List of Generic Names in Zoology the name *Cryphops* Richter & Richter, 1926 (gender: masculine), type species by original designation *Phacops cryptophthalmus* Emmrich, 1844;
- (3) to place on the Official List of Specific Names in Zoology the name *cryptophthalmus* Emmrich, 1844, as published in the binomen *Phacops cryptophthalmus* (specific name of the type species of *Cryphops* Richter & Richter, 1926);
- (4) to place on the Official Index of Rejected and Invalid Generic Names in Zoology the following names:
 - (a) *Gortania* Cossmann, 1909, as suppressed in (1) above;
 - (b) *Microphthalmus* Gortani, 1907 (a junior homonym of *Microphthalmus* Mecznikow, 1865).

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References

- Chlupáč, I.** 1977. The phacopid trilobites of the Silurian and Devonian of Czechoslovakia. *Rozprawy Ustředního Ústavu Geologického*, **43**: 1–172.
- Cossmann, M.** 1908. Contribuzioni allo studio del paleozoico carnico — III: la Fauna a Climenie del Monte Primosio, per M. Gortani. *Revue critique de paléozoologie*, **12**: 245–246.
- Cossmann, M.** 1909. Rectifications de nomenclature. *Revue critique de paléozoologie*, **13**: 67–68.
- Crônier, C. & Feist, R.** 2000. Evolution et systématique du group *Cryphops* (Phacopinæ, Trilobita) du Dévonien supérieur. *Senckenbergiana Lethæa*, **79**: 501–515.
- Delo, D.M.** 1935. A revision of the phacopid trilobites. *Journal of Paleontology*, **9**: 402–420.
- Emmrich, H.F.** 1844. *Zur Naturgeschichte der Trilobiten*. 28 pp., 1 pl. Meiningen.
- Feist, R. & Schindler, E.** 1994. Trilobites during the Frasnian Kellwasser Crisis in European Late Devonian cephalopod limestones. *Courier Forschungsinstitut Senckenberg*, **169**: 195–223.
- Gortani, M.** 1907. Contribuzioni allo studio del Paleozoico Carnico. III. La fauna a Climenie del Monte Primosio. *Memorie della Reale Accademia delle Scienze dell'Istituto di Bologna*, (6)**4**: 201–245.
- Hahn, G. & Hahn, R.** 1975. Die Trilobiten des Ober-Devon, Karbon und Perm. *Leitfossilien*, **1**: 1–127.
- Hupé, P.** 1953. Classe des trilobites. Pp. 44–246 in Piveteau, J. (Ed.), *Traité de paléontologie*, vol. 3. Masson et Cie, Paris.
- Kramarenko, N.N. & Maksimova, Z.A.** 1960. Nadsemeistvo Phacopoidea Hawle et Corda, 1847. Pp. 162–171 in Chernysheva, N.E. (Ed.), *Osnovy paleologii. Chlenistonogie trilobitoobraznye i rakoobraznye*. 515 pp. Nedra, Moscow.
- Lütke, F.** 1968. Trilobiten aus dem Oberdevon des Südwest-Harzes — Stratigraphie, Biotop und Systematik. *Senckenbergiana Lethæa*, **49**: 119–191.
- Maksimova, Z.A.** 1955. Trilobity srednego i verkhnego devona Urala i severnykh Mugodzhar. *Trudy Vsesoyuznogo Nauchno-Issledovatel'skogo Geologicheskogo Instituta*, **3**: 1–264.
- Mecznikow, E.** 1865. Beiträge zur Kenntniss der Chaetopoden. *Zeitschrift für wissenschaftliche Zoologie*, **15**: 328–341.
- Osmólska, H.** 1963. On some Famennian Phacopinæ (Trilobita) from the Holy Cross Mountains (Poland). *Acta Palaeontologica Polonica*, **8**: 495–523.
- Reed, F.R.C.** 1927. Recent work on the Phacopidae, part 1. *Geological Magazine*, **64**: 308–322.
- Richter, R. & Richter, E.** 1926. Die Trilobiten des Oberdevons. Beiträge zur Kenntnis devonischer Trilobiten. 4. *Abhandlungen der Preussischen geologischen Landesanstalt*, **99**: 1–314.
- Richter, R., Richter, E. & Struve, W.** 1959. Subfamily Phacopinæ. Pp. 463–466 in Moore, R.C. (Ed.), *Treatise on invertebrate paleontology. Part O. Arthropoda 1*. Geological Society of America and University of Kansas Press. 560 pp. Lawrence, Kansas.
- Struve, W.** 1989. *Rabienops evae* aus dem späten Ober-Devon des Rheinischen Gebirges. *Bulletin de la Société Belge de Géologie*, **98**: 335–342.
- Vogdes, A.W.** 1925. Palaeozoic Crustacea. Part 2. An alphabetical list of the genera and subgenera of the Trilobita. *Transactions of the San Diego Society of Natural History*, **4**: 89–115.

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).

Case 3164

***Kaloterme*s Hagen, 1853 (Insecta, Isoptera): proposed designation of *Termes flavicollis* Fabricius, 1793 as the type species**

Michael S. Engel

Division of Entomology, Natural History Museum and Biodiversity Research Center, Snow Hall, 1460 Jayhawk Boulevard, University of Kansas, Lawrence, Kansas 66045–7523, U.S.A.

Kumar Krishna

Division of Invertebrate Zoology, American Museum of Natural History, Central Park West at 79th Street, New York, N.Y. 10024–5192, U.S.A.

Abstract. The purpose of this application is to conserve the current usage of the generic name *Kaloterme*s Hagen, 1853 for a common group of living drywood termites, with Middle Eocene fossil representatives. Wasmann (1897) designated *Termes flavicollis* Fabricius, 1793 as type species of *Kaloterme*s Hagen, 1858 (an unjustified emendation and hence a junior objective synonym of *Kaloterme*s), but this designation was invalid since it was not an originally included species in *Kaloterme*s. The first valid type species designation for *Kaloterme*s was by Banks (1920) who designated *Termes berendtii* Pictet, 1856, but this species had been designated by von Rosen (1913) as type species of *Proelectrotermes* von Rosen, 1913, a genus currently in use for a Middle Eocene species. To conserve current usage of *Kaloterme*s and *Proelectrotermes* it is proposed that *T. flavicollis* be designated as type species of *Kaloterme*s.

Keywords. Nomenclature; taxonomy; Isoptera; *Kaloterme*s; *Proelectrotermes*; KALOTERMITIDAE; termites; Middle Eocene; Recent.

1. Hagen (1853, pp. 479–480) named the termite genus *Kaloterme*s and provided a fairly detailed description of the imago and soldier castes, nymphs, and nest excavations for the group. Even though he did not include any named species the name *Kaloterme*s is available from 1853. The generic description included information on a variety of castes and biological traits, and Hagen probably had before him a living species from which to draw such character information.

2. Hagen (1854, p. 222) again mentioned *Kaloterme*s and for the first time included specific names for two Middle Eocene species, *Kaloterme*s *affinis* Hagen and *K. berendtii* Pictet, but these were not described and are nomina nuda. These two specific names were made available two years later when Hagen (in Pictet & Hagen, 1856) published descriptions and illustrations of *Termes berendtii* which he attributed to Pictet (p. 49) and *T. affinis* Hagen (p. 50) and included both in his ‘gruppe’ *Kaloterme*s. It has commonly been believed that Hagen also included *T. flavicollis* Fabricius, 1793 (p. 91, published as *T. flavicolle* but changed to *T. flavicollis* in accordance with Article 34.2 of the Code) in *Kaloterme*s at this time (e.g., Krishna,

1961; Watson, Miller & Abbey, 1998). However, Hagen did not explicitly assign *T. flavicollis* to *Kalotermes* but merely provided comparative comments distinguishing *T. flavicollis* from the fossil species. Hagen made similar comparisons to other living species that were also not explicitly included in *Kalotermes*. Only the fossils *T. berendtii* and *T. affinis* were explicitly included in *Kalotermes*, and these are thus the only originally included species (Article 67.2.2). Both fossils were (and still are) known only on the basis of the imago caste and could not have provided Hagen with the character information from the soldier caste, nymphs, and nesting biology upon which he (Hagen, 1853) had established the genus.

3. Hagen (1858, pp. 32–33) emended the spelling of the genus to *Calotermes*, noting *Kalotermes* as a synonym; he expanded the definition of the genus, listing 20 species among which were both fossil species from his 1854 and 1856 papers as well as *T. flavicollis*. *Calotermes* Hagen, 1858 is an unjustified emendation (Article 33.2) and an available name, but a junior objective synonym of *Kalotermes*.

4. Wasmann (1897, p. 150), using Hagen's emended spelling, designated *T. flavicollis* as type species of *Calotermes*; however this designation was not valid (Article 67.8.1) since *T. flavicollis* was not an originally included species in *Kalotermes*, the senior objective synonym of *Calotermes*.

5. Von Rosen (1913, p. 331), in a work summarizing the known fossil termites, described two new subgenera of *Calotermes* for Pictet & Hagen's (1856) fossil species: *Proelectrotermes* with *T. berendtii* as type species by original designation and monotypy, and *Electrotermes* with *T. affinis* as type species by original designation.

6. Banks (in Banks & Snyder, 1920, p. 9), in a revision of Nearctic termites, designated *T. berendtii* Pictet as type species for *Kalotermes* but continued to include in the genus the living drywood termite species related to *T. flavicollis*. This type species designation is valid since *T. berendtii* was an originally included species in *Kalotermes* as of 1856. *T. berendtii* also becomes the type species of *Calotermes*.

7. Snyder (1949, p. 11), in a catalog of termite species of the world, considered *Calotermes* to have been an unjustified emendation of *Kalotermes* and listed *T. flavicollis* as the type species for *Kalotermes*, citing Wasmann (1897) for the designation.

8. In the first half of the 20th century both *Kalotermes* and *Calotermes* were in common usage for the same group of living drywood termites. Examples of uses of *Calotermes* include Desneux (1904), Silvestri (1901, 1934), Holmgren (1910), Sjöstedt (1907, 1926), and Grassé (1949), while uses of *Kalotermes* include Banks & Snyder (1920), Snyder (1925, 1935, 1949), Emerson (1928, 1942, 1955, 1969), Hare (1937), Coaton (1949), Ahmad (1950), Stroud (1953), and Weidner (1955).

9. Krishna (1961, pp. 331–332), in a generic revision of the drywood termite family KALOTERMITIDAE, adopted the name *Kalotermes*, with *T. flavicollis* as type species on the grounds that Hagen (1853) based his definition on a living termite species the description of which fits *T. flavicollis*.

10. Subsequent to Krishna (1961) all authors referring to drywood termites related to *T. flavicollis* have used the name *Kalotermes* Hagen with *T. flavicollis* as type species (e.g., Miller, 1969; Weidner, 1970; Spear, 1970; Harris, 1971; Noirot & Noirot-Timotheé, 1972; Becker, 1973; Gay, 1977; Roonwal & Chhotani, 1989; Watson & Gay, 1991; Constantino, 1998; Watson, Miller & Abbey, 1998). *Calotermes* Hagen, 1858 has universally and correctly been cited as a junior objective

synonym and an unjustified emendation. *Proelectrotermes* is formally a junior objective synonym of *Kalotermes* following Banks's (1920) type species designation of *T. berendtii* Pictet for *Kalotermes*, even though *Proelectrotermes* has been universally treated as the name for the monotypic fossil genus based on *T. berendtii* for more than 45 years.

11. Presently involved in a new catalogue of living and fossil species for the world and attempting to stabilize the nomenclature of termites, we propose that all type species designations for *Kalotermes* be set aside and *T. flavicollis* be designated as the type species for *Kalotermes*, thereby conserving the current usage of the generic names *Kalotermes* and *Proelectrotermes*.

12. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to set aside all previous fixations of type species for the nominal genus *Kalotermes* Hagen, 1853 and to designate *Termes flavicollis* Fabricius, 1793 as type species;
- (2) to place on the Official List of Generic Names in Zoology the following names:
 - (a) *Kalotermes* Hagen, 1853 (gender: masculine), type species by designation in (1) above *Termes flavicollis* Fabricius, 1793;
 - (b) *Proelectrotermes* von Rosen, 1913 (gender: masculine), type species by original designation and monotypy *Termes berendtii* Pictet, 1856;
- (3) to place on the Official List of Specific Names in Zoology the following names:
 - (a) *flavicollis* Fabricius, 1793, as published in the binomen *Termes flavicolle* (specific name of the type species of *Kalotermes* Hagen, 1853);
 - (b) *berendtii* Pictet, 1856, as published in the binomen *Termes berendtii* (specific name of the type species of *Proelectrotermes* von Rosen, 1913);
- (4) to place on the Official Index of Rejected and Invalid Generic Names in Zoology the name *Calotermes* Hagen, 1858 (a junior objective synonym of *Kalotermes* Hagen, 1853).

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References

- Ahmad, M. 1950. The phylogeny of termite genera based on imago-worker mandibles. *Bulletin of the American Museum of Natural History*, **95**: 37–86.
- Banks, N. & Snyder, T.E. 1920. A revision of the Nearctic termites, with notes on biology and geographic distribution. *Bulletin of the United States National Museum*, **108**: 1–228.
- Becker, G. 1973. Zur Prüfung des chemischen Schutzes von Sperrholz gegen Termiten. *Material und Organismen*, **8**: 215–231.
- Coaton, W.G.H. 1949. Notes on some South African species of the families Hodotermitidae and Kalotermitidae. *Journal of the Entomological Society of South Africa*, **12**: 13–77.
- Constantino, R. 1998. Catalog of the living termites of the New World (Insecta: Isoptera). *Arquivos de Zoologia, São Paulo*, **35**: 135–231.
- Desneux, J. 1904. A propos de la phylogénie des Termitides. *Annales de la Société Entomologique de Belgique*, **48**: 278–286.
- Emerson, A.E. 1928. Termites of the Belgian Congo and the Cameroon. *Bulletin of the American Museum of Natural History*, **57**: 401–574.

- Emerson, A.E.** 1942. The relations of a relict South African termite (Isoptera, Hodotermitidae, *Stolotermes*). *American Museum Novitates*, **1187**: 1–12.
- Emerson, A.E.** 1955. Geographical origins and dispersions of termite genera. *Fieldiana: Zoology*, **37**: 465–521.
- Emerson, A.E.** 1969. A revision of the Tertiary fossil species of the Kalotermitidae (Isoptera). *American Museum Novitates*, **2359**: 1–57.
- Fabricius, J.C.** 1793. *Entomologia Systematica Emendata et Aucta, Secundum Classes, Ordines, Genera, Species, Adjectis Synonymis, Locis, Observationibus, Descriptionibus*, vol. 2. viii, 519 pp. Proft, Hafniae.
- Gay, F.J.** 1977. A new species of *Kalotermes* Hagen (Isoptera: Kalotermitidae) from tropical Queensland. *Journal of the Australian Entomological Society*, **16**: 221–224.
- Grassé, P.-P.** 1949. *Traité de Zoologie (Anatomie, Systématique, Biologie)*, vol. 9, Insectes. 1117 pp. Masson, Paris.
- Hagen, H.** 1853. Hr. Peters Berichtete über die von ihm gesammelten und von Hrn. Dr. Hermann Hagen bearbeiten Neuropteren aus Mossambique. *Bericht über die zur Bekanntmachung geeigneten Verhandlungen der Königlichen Preussischen Akademie der Wissenschaften zu Berlin*, **18**: 479–484.
- Hagen, H.** 1854. Ueber die Neuropteren der Bernsteinfauna. *Verhandlungen der Zoologisch-Botanischen Vereins in Wien*, **4**: 221–232.
- Hagen, H.** 1858. Monographie der Termiten. *Linnaea Entomologica*, **12**: 1–342.
- Hare, L.** 1937. Termite phylogeny as evidenced by soldier mandible development. *Annals of the Entomological Society of America*, **30**: 459–486.
- Harris, W.V.** 1971. *Termites: their recognition and control*. xiii, 186 pp. Longmans, London.
- Holmgren, N.** 1910. Das System der Termiten. *Zoologischer Anzeiger*, **35**: 284–286.
- Krishna, K.** 1961. A generic revision and phylogenetic study of the family Kalotermitidae (Isoptera). *Bulletin of the American Museum of Natural History*, **122**: 303–408.
- Miller, E.M.** 1969. Caste differentiation in the lower termites. Pp. 283–310 in Krishna, K. & Weesner, F.M. (Eds.), *Biology of termites*, vol. 1. xiii, 598 pp. Academic Press, New York.
- Noirot, C. & Noirot-Timotheé, C.** 1972. Structure fine de la bordure en brosse de l'intestin moyen chez les insectes. *Journal de Microscopie*, **13**: 85–96.
- Pictet, F.J. & Hagen, H.** 1856. Die im Bernstein befindlichen Neuropteren der Vorwelt. Pp. 41–126 in Berendt, G.C. (Ed.), *Die im Bernstein befindlichen organischen Reste der Vorwelt*, vol. 2. [2], 126 pp.
- Roonwal, M.L. & Chhotani, O.B.** 1989. *Fauna of India and Adjacent Countries: Isoptera (Termites)*, vol. 1. [8], viii, 672 pp. Zoological Survey of India, Calcutta.
- Rosen, K. von.** 1913. Die fossilen Termiten: Eine kurze Zusammenfassung der bis jetzt bekannten Funde. *Transactions of the Second International Congress of Entomology, Oxford 1912*, **2**: 318–335, 6 pls.
- Silvestri, F.** 1901. Nota preliminare sui Termitidi sud-americani. *Bollettino dei Musei di Zoologia ed Anatomia Comparata della Reale Università di Torino*, **16**(389): 1–8.
- Silvestri, F.** 1934. *Compendio di Entomologia Applicata (Agraria-Forestale-Medica-Veterinaria)*, parte speciale. 448 pp. Tipographia Bellavista, Portici.
- Sjöstedt, Y.** 1907. *Wissenschaftliche Ergebnisse der Schwedischen Zoologischen Expedition nach dem Kilimandjaro, dem Meru und den Umgebenden Massaisteppen Deutsch-Ostafrika 1905–1906 unter Leitung von Prof. Dr. Yngve Sjöstedt: Herausgegeben von der Königliche Schwedischen Akademie der Wissenschaften*, 15. *Corrodentia, 1. Termitidae*, vol. 3. 37 pp. Almqvist & Wiksells, Uppsala.
- Sjöstedt, Y.** 1926. Revision der Termiten Afrikas: 3. Monographie. *Kungliga Svenska Vetenskapsakademiens Handlingar*, (3)**3**: 1–419.
- Snyder, T.E.** 1925. Notes on fossil termites with particular reference to Florissant, Colorado. *Proceedings of the Biological Society of Washington*, **38**: 149–166.
- Snyder, T.E.** 1935. *Our Enemy, the Termite*. xii, 196 pp. Comstock Publishing Company, Ithaca.
- Snyder, T.E.** 1949. Catalog of the termites (Isoptera) of the world. *Smithsonian Miscellaneous Collections*, **112**: 1–490.

- Spear, P.J.** 1970. Principles of Termite Control. Pp. 577–604 in Krishna, K. & Weesner, F.M. (Eds.), *Biology of Termites*, vol. 2. xiv, 643 pp. Academic Press, New York.
- Stroud, C.P.** 1953. An application of factor analysis to the systematics of *Kalotermes*. *Systematic Zoology*, **2**: 76–92.
- Wasmann, E.** 1897. Termiten von Madagaskar und Ostafrika. *Abhandlungen der Senckenbergischen Naturforschenden Gesellschaft*, **21**: 137–182.
- Watson, J.A.L. & Gay, F.J.** 1991. Isoptera (Termites). Pp. 330–347 in Naumann, I.D. & Carne, P. B. (Eds.), *The Insects of Australia: A Textbook for Students and Research Workers*, Ed. 2, vol. 1. xvi, 1, 542 pp. Cornell University Press, Ithaca.
- Watson, J.A.L., Miller, L.R. & Abbey, H.M.** 1998. Isoptera. Pp. 163–250 in Houston, W.W.K. & Wells, A. (Eds.), *Zoological catalogue of Australia*, vol. 23: *Archaeognatha, Zygentoma, Blattodea, Isoptera, Mantodea, Dermaptera, Phasmatodea, Embioptera, Zoraptera*. xiii, 464 pp. CSIRO Publishing, Melbourne.
- Weidner, H.** 1955. Körperbau, Systematik und Verbreitung der Termiten. Pp. 5–81 in Schmidt, H. (Ed.), *Die Termiten: Ihre Erkennungsmerkmale und wirtschaftliche Bedeutung*. 309 pp. Geist & Portig, Leipzig.
- Weidner, H.** 1970. Isoptera (Termiten). *Handbuch der Zoologie*, (14)**4**: 1–147.
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Case 3147***Hydroporus discretus* Fairmaire & Brisout in Fairmaire, 1859 (Insecta, Coleoptera): proposed conservation of the specific name**

Hans Fery

Räuschstrasse, 73, D-13509 Berlin, Germany (e-mail: HFery@aol.com)

Abstract. The purpose of this application is to conserve the specific name of *Hydroporus discretus* Fairmaire & Brisout in Fairmaire, 1859 for a Palaearctic diving beetle. It is threatened by *H. neuter* Fairmaire & Laboulbène, 1854, a name which has only been used once since 1887, by Ádám (1996).

Keywords. Nomenclature; taxonomy; Coleoptera; DYSTICIDAE; *Hydroporus*; *Hydroporus discretus*; *Hydroporus neuter*; diving beetles; Europe; Palaearctic.

1. Fairmaire & Laboulbène (1854, p. 205) established the name *Hydroporus neuter* for a species of aquatic beetle from the French Haute-Pyrénées. The original specimens are in the Muséum National d'Histoire Naturelle, Paris.

2. The name *Hydroporus discretus* was published by Fairmaire & Brisout in Fairmaire (1859, p. 28) for an aquatic beetle from Marly, Bois de Boulogne, France. The original specimens are in the Muséum National d'Histoire Naturelle, Paris. It has been used as a valid name since its publication.

3. Before *Hydroporus discretus* was established the name *H. neuter* was used by Clark (1855, p. 4862), Jacquelin du Val (1857, p. 35) and Kraatz & Kiesenwetter (1859, p. 16).

4. Afterwards both names *Hydroporus neuter* and *H. discretus* were used as valid by Schaum (1862, p. 17), Calwer (1869, p. 79), Branden (1885, pp. 52, 58) and Fowler (1887, p. 185), who treated them as separate species, as had Fairmaire himself. However, Sharp (1882, p. 460) realised that the taxa were very closely related and might prove to be the same species.

5. Following Sharp's (1882) work, a number of authors considered *Hydroporus neuter* to be a junior synonym of *H. foveolatus* (Heer, 1839): Ganglbauer (1892, p. 475), Heyden, Reitter & Weise (1906, p. 117), Jakobson (1908, p. 425), Reitter (1908, p. 217) and Fuente (1921, p. 78). Other authors considered the name to be a junior synonym of *H. nivalis* (Heer, 1839): Gemminger & Harold (1868, p. 437), Schaum & Kiesenwetter (1868, p. 68) and Gozis (1914, p. 176). All other authors, particularly since Fuente (1921, p. 78), used *H. discretus* as valid, either citing *H. neuter* as a synonym or not mentioning the latter name (see para. 8).

6. Balke & Fery (1993, p. 95) reviewed the original specimens of *Hydroporus neuter* and *H. discretus* and designated lectotypes for both nominal species. The original specimens of *H. neuter* were found gummed onto a single piece of card which is labelled 'neuter', 'Pyr. Pande', '*Hydrop. neuter* Fairm., Pyr. Pandellé' by Dufour, and 'Muséum Paris, Coll. Léon Dufour, 1899'; the specimen on the left was designated as the lectotype and the one on the right as paralectotype. Both specimens were found

to be seriously damaged and sex determination was impossible. Three original specimens of *H. discretus* were also found gummed to a single piece of card which is labelled 'Boulogne, n. sp.' by Fairmaire, and 'Muséum Paris, 1906, Coll. Léon Fairmaire'. The specimens were separated and labelled as lectotype (a male) and paralectotypes (two females) by Balke & Fery (1993, p. 95). By critical examination of the remaining diagnostic characters they considered that the original specimens of the two nominal taxa represented the same species. Furthermore, they suggested that the name *H. discretus* should be conserved and *H. neuter* be suppressed and that the case should be referred to the Commission. However, they did not actually submit an application.

7. Ádám (1996, p. 59) resurrected the name *Hydroporus neuter* for the species in his Hungarian checklist. To my knowledge he is the only author during the 20th century who recorded *Hydroporus neuter* as a valid name and treated *H. discretus* as a junior subjective synonym of it. Ádám did not mention Balke & Fery's (1993) publication.

8. With the exception of Ádám (1996) the name *Hydroporus discretus* has been in continuous use since Sharp (1882). Examples include Seidlitz (1887), Schaufuss (1916), Sainte-Claire Deville (1935); some recent authors are Galewski (1976), Franciscolo (1979), Rico, Perez & Montes (1990) and Nilsson & Holmen (1995). A list of 16 additional references has been given to the Commission Secretariat. No one has followed Ádám (1996) in the use of *H. neuter*.

9. I now propose that prevailing and long standing usage of the name *Hydroporus discretus* be conserved by suppressing the almost never used name *H. neuter*.

10. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to suppress the name *neuter* Fairmaire & Laboulbène, 1854, as published in the binomen *Hydroporus neuter*, for the purposes of the Principle of Priority but not for those of the Principle of Homonymy;
- (2) to place on the Official List of Specific Names in Zoology the name *discretus* Fairmaire & Brisout in Fairmaire, 1859, as published in the binomen *Hydroporus discretus*;
- (3) to place on the Official Index of Rejected and Invalid Specific Names in Zoology the name *neuter* Fairmaire & Laboulbène, 1854, as published in the binomen *Hydroporus neuter* and as suppressed in (1) above.

Acknowledgement

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References

- Ádám, L. 1996. A check-list of the Hungarian caraboid beetles (Coleoptera). *Folia Entomologica Hungarica*, **57**: 5–64.
- Balke, M. & Fery, H. 1993. Taxonomic notes on Western Palaearctic species of *Hydroporus* Clairville and *Coelambus* Thomson (Coleoptera: Dytiscidae). *Annales de la Société Entomologique de France*, **29**: 89–101.
- Branden, C. van den. 1885. Catalogue des Coléoptères carnassiers aquatiques (Halipidae, Amphizoïidae, Pelobiidae et Dytiscidae). *Annales de la Société Entomologique de Belgique*, **29**(1): 5–118.
- Calwer, C.G. 1869. *Käferbuch, Naturgeschichte der Käfer Europas*. xvi, 626 pp., 49 pls. Stuttgart.

- Clark, H.** 1855. Synonymic list of the British carnivorous water beetles, together with critical remarks, and notices of foreign allied species. *Zoologist*, **13**: 4846–4869.
- Fairmaire, L.** 1859. Miscellanea Entomologica. Troisième Partie. *Annales de la Société Entomologique de France*, (3)7: 21–64.
- Fairmaire, L. & Laboulbène, A.** 1854. *Faune entomologique française ou description des insectes qui se trouvent en France. Coléoptères*, vol. 1. xxxv, 665 pp. Deyrolle, Paris.
- Fowler, W.W.** 1887. *The Coleoptera of the British Islands. A descriptive account of the families, genera, and species indigenous to Great Britain and Ireland, with notes as to localities, habitats etc.*; 1. (Adephaga—Hydrophilidae). xxxii, 269 pp. Reeve, London.
- Franciscolo, M.** 1979. Coleoptera, Haliplidae, Hygrobiidae, Gyrinidae, Dytiscidae. *Fauna d'Italia*. 804 pp. Calderini, Bologna.
- Fuente, J. de la.** 1921. Catálogo sistemático geográfico de los coleópteros observados en la península Ibérica, Pirineos propiamente dichos y Baleares. *Boletín de la Sociedad Entomológica de España*, **4**(4–8): 73–104.
- Galewski, K.** 1976. Familia: Dytiscidae Degeer, 1774. Pp. 24–46 in Burakowski, B., Mroczkowski, M. & Stefńska, J. *Katalog Fauny Polski*, **23**(4): 1–307.
- Ganglbauer, L.** 1892. *Die Käfer von Mitteleuropa. Die Käfer der österreichisch-ungarischen Monarchie, Deutschlands, der Schweiz sowie des französischen und italienischen Alpengebietes*, Erster Band, Familienreihe Caraboidea. iii, 557 pp. Gerold's Sohn, Wien.
- Gemminger, M. & Harold, E. de.** 1868. *Catalogus Coleopterorum hucusque descriptorum synonymicus et systematicus*, vol. 2. Pp. 425–752. Gummi, Monachii.
- Gozis, M. des.** 1914. Tableaux de détermination des Dytiscides, Notérides, Hyphyrdes, Hygrobiidides et Haliplides de la faune Franco-Rhénane. *Miscellanea Entomologica*, **22**(5–6): 113–208.
- Heyden, L. von, Reitter, E. & Weise, J.** 1906. *Catalogus Coleopterorum Europae, Caucasi et Armeniae Rossicae*. 775 pp. Berlin, Paskau, Caen.
- Jacquelin du Val, C.** 1857. Catalogue de la famille des Dytiscides. Pp. 33–38 in *Genera des Coléoptères d'Europe*, vol. 1. Deyrolle, Paris.
- Jakobson, G.G.** 1908. *Zhuki Rossii i zapadnoy Evropy* (The beetles of Russia and Western Europe), part 6. Pp. 401–480. Petersburg.
- Kraatz, G. & Kiesenwetter, E.A.H. von.** 1859. In Schaum, H. (Ed.), *Catalogus Coleopterorum Europae*. iv, 121 pp. Nicolai, Berlin.
- Nilsson, A. & Holmen, M.** 1995. The aquatic Adephaga (Coleoptera) of Fennoscandia and Denmark. II. Dytiscidae. *Fauna Entomologica Scandinavica*, **32**: 1–192.
- Reitter, E.** 1908. *Fauna Germanica. Die Käfer des Deutschen Reiches*. Band 1. 248 pp., 40 pls. Lutz, Stuttgart.
- Rico, E., Perez, L. & Montes, C.** 1990. Lista faunistica y bibliografica de los Hydradephaga (Coleoptera: Haliplidae, Hygrobiidae, Gyrinidae, Noteridae, Dytiscidae) de la Península Ibérica e Islas Baleares. *Listas de la Flora y Fauna de las Aguas Continentales de la Península Ibérica*, vol. 7. iii, 216 pp. Asociación Española de Limnología, Madrid.
- Sainte-Claire Deville, J.** 1935. Catalogue raisonné des coléoptères de France. *L'Abeille*, **36**(1): 1–160.
- Schaufuss, C.** 1916. *Calwer's Käferbuch, Einführung in die Kenntnis der Käfer Europas*, vol. 1. 708 pp., 23 pls. Nägele & Sprösser, Stuttgart.
- Schaum, H.** 1862. *Catalogus Coleopterorum Europae*. 130 pp. Nicolaische, Berlin.
- Schaum, H. & Kiesenwetter, E.A.H. von.** 1868. Coleoptera, Erster Band, zweite Hälfte in Erichson, W.F. (Ed.), *Naturgeschichte der Insekten Deutschlands*. 144 pp. Berlin.
- Seidlitz, G.** 1887. Bestimmungstabelle der Dytiscidae und Gyrinidae des europäischen Faunengebietes. *Verhandlungen des Naturforschenden Vereines in Brünn*, **25**: 1–136.
- Sharp, D.** 1882. On aquatic carnivorous Coleoptera or Dytiscidae. *Scientific Transactions of the Royal Dublin Society*, **2**: 179–1003.

Case 3154

***Scymnus splendidulus* Stenius, 1952 (currently *Nephus (Sidis) splendidulus*; Insecta, Coleoptera): proposed retention of the neotype as the name-bearing type despite rediscovery of the holotype**

Helmut Fürsch

Bayerwaldstrasse 26, D-94161 Ruderting, Germany
(e-mail: helmut.fuersch@uni-passau.de)

Hans Silfverberg

Zoological Museum, P.O. Box 17, FIN-00014 Helsinki, Finland
(e-mail: hans.silfverberg@helsinki.fi)

Abstract. The purpose of this application is to retain as the name-bearing type the neotype designated by Fürsch (1965) of the Mediterranean coccinellid beetle *Nephus (Sidis) splendidulus* (Stenius, 1952) despite the rediscovery of the holotype. The holotype is damaged and, unlike the neotype, does not show the aedeagal characters necessary to distinguish the species from its close relatives.

Keywords. Nomenclature; taxonomy; Coleoptera; COCCINELLIDAE; *Nephus*; *Nephus (Sidis) splendidulus*; ladybird beetles.

1. Stenius (1952, p. 155) described the coccinellid beetle *Scymnus splendidulus* from the Mediterranean region. One specimen from Morocco was selected as the holotype and another specimen from Corfu was labelled as paratype. He obtained additional specimens from Cyprus that he called *S. splendidulus* ab. *nigella*. Stenius included his species in the subgenus *Nephus*, which nowadays is generally treated as a separate genus; within *Nephus* this species is included in the subgenus *Sidis* Fürsch, 1987.

2. Fürsch (1965) revised the group of species that includes *Nephus splendidulus*. At that time the holotype could not be found. The paratype, collected in Corfu, was considered to be a distinct species and assigned to the new species *Scymnus (Sidis) meinanderi* Fürsch (1965, p. 204). The specimens from Cyprus were found to belong to the species *Nephus nigricans* (Weise, 1879). Since the group in question is taxonomically difficult, a neotype was designated for *N. splendidulus* by Fürsch (1965, p. 204). It was collected in Algeria and is labelled 'Tebessa, J. Sahlb., 4255' (Zoological Museum Helsinki type number 2659). The neotype was mentioned by Plaza (1981).

3. The holotype of *Scymnus splendidulus* Stenius, 1952 was recently rediscovered during a rearrangement of the collections in the Helsinki Museum. Comparison of the badly damaged holotype and the neotype has shown the two specimens are conspecific, but *S. splendidulus* belongs to a group of species that are difficult to distinguish by other than aedeagal characters (see Fürsch, 1987) and, unlike the (female) holotype, the neotype does have these diagnostic features. For this reason, and in accordance with Article 75.8 of the Code, we consider the retention of the neotype to be in the best interests of taxonomy and nomenclatural stability.

4. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to confirm as the name-bearing type for *Scymnus splendidulus* Stenius, 1952 the neotype designated by Fürsch (1965) and registered as type number 2659 in the Zoological Museum, Helsinki;
- (2) to place on the Official List of Specific Names in Zoology the name *splendidulus* Stenius, 1952, as published in the binomen *Scymnus splendidulus* and as defined by the neotype designated by Fürsch (1965) and confirmed in (1) above.

References

- Fürsch, H.** 1965. Die palaearktischen Arten der *Scymnus bipunctatus*-Gruppe und die europäischen Vertreter der Untergattung *Sidis* (Col. Cocc.). *Mitteilungen der Münchner Entomologischen Gesellschaft*, **55**: 178–213.
- Fürsch, H.** 1987. Übersicht über die Genera und Subgenera der Scymnini mit besonderer Berücksichtigung der Westpalaearktis (Insecta, Coleoptera, Coccinellidae). *Entomologische Abhandlungen*, **51**: 57–74.
- Plaza, E.** 1981. Los representantes españoles de *Nephus* del subgénero *Sidis*. *Boletín de la Asociación Española de Entomología*, **4**: 235–242.
- Stenius, G.** 1952. Paläarktische Arten aus der Gruppe *Scymnus* (*Nephus*) *bipunctatus* Kugel. (Col. Coccinellidae). *Notulae Entomologicae*, **32**: 147–155.
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Case 3028***Aphanius* Nardo, 1827 (Osteichthyes, Cyprinodontiformes): proposed placement on the Official List**

Maurice Kottelat

Route de la Baroche 12, Case postale 57, 2952 Cornol, Switzerland (address for correspondence); Department of Zoology, National University of Singapore, Kent Ridge, Singapore 119260 (e-mail: mkottelat@dplanet.ch)

Alwyne Wheeler

clo Department of Zoology, The Natural History Museum, Cromwell Road, London SW7 5BD, U.K.

Abstract. The purpose of this application is to conserve the name *Aphanius* Nardo, 1827 for a genus of Palearctic fishes (family CYPRINODONTIDAE). The name has been in uninterrupted use since at least 1926 but a few authors have recently replaced it with *Lebias* Goldfuss, 1820, a name which, with a single exception in 1895, had remained unused since 1846 until resurrected in 1995 and which does not refer to the same taxon as *Aphanius*. *Aphanius* includes at least 17 extant species and fossil remains have been reported from Miocene deposits.

Keywords. Nomenclature; taxonomy; *Aphanius*; *Cyprinodon*; *Lebias*; CYPRINODONTIDAE; *Aphanius fasciatus*; *Cyprinodon variegatus*; tooth carps; freshwater; brackish water; Palearctic.

1. The name *Aphanius* Nardo, 1827 (ref. 1827a, pp. 34, 39-40; also published in 1827b, col. 487) relates to a genus of fresh and brackish water tooth carps (family CYPRINODONTIDAE) with a wide distribution, basically peri-Mediterranean, extending from Portugal and Morocco to Pakistan. The genus was established with two originally included nominal species, *A. nanus* and *A. fasciatus*, both of Nardo (1827a, pp. 34, 40; 1827b, col. 488). Jordan (1917, p. 121) selected *A. nanus*, a junior synonym of *Lebias fasciata* Valenciennes in Cuvier & Valenciennes, 1827, as the type species (see para. 9). The genus now includes at least 17 species and subspecies, although it is likely that the number is much greater, and several have very restricted distributions in arid zones. Several populations and species are now seriously threatened by depletion of water resources for urban and agricultural use, pollution and introductions and are given local protection and listed by international agencies (for example, the 1996 IUCN Red List of Threatened Animals). Fossil remains identified as *Aphanius* have been reported from Miocene deposits.

2. The name *Aphanius* has been in uninterrupted use since at least 1926 but it has recently been treated by a few authors as a junior synonym of *Lebias* Goldfuss, 1820. This latter name has for more than 150 years been considered a junior synonym of *Cyprinodon* La Cépède, 1803 and, with a single exception in 1895, remained unused since 1846 until resurrected in 1995. However, the (1995) type species designation

which was supposed to render *Aphanius* a synonym of *Lebias* is invalid. To secure the continued and unhindered use of the name *Aphanius* we propose that it be placed on the Official List.

3. The history of the name *Lebias* is as follows. Cuvier (1816, p. 199) proposed a new genus of tooth carps using the vernacular name 'Le Lebias'. He did not mention species by name. Oken (1817, p. 1183), in a commentary on Cuvier's classification and a comparison between the latter and his own, adopted the Latin name *Lebia* and, by reference to Cuvier, rendered the name available (see Gill, 1903, p. 967). There were no included species. The name *Lebia* Oken is, however, a junior homonym of *Lebia* Latreille, 1802, a much used name in Coleoptera.

4. The tooth carp genus was subsequently briefly described by Goldfuss (1820, p. 16) who, like Oken, referred to Cuvier (1816) but used the spelling *Lebias*. Since *Lebia* Oken is a junior homonym (para. 3 above), the synonym *Lebias* Goldfuss, 1820 would be the valid name for the genus (if it were separated from *Cyprinodon* La Cèpède, 1803; see para. 6 below). Again there were no originally included species (Goldfuss noted 'Arten sind noch nicht beschrieben'). The first subsequent mention of the genus, which also included a nominal species, was by Le Sueur (1821) who, like Goldfuss (1820), referred to Cuvier (1816) but used *Lebia*, the same spelling as Oken. Le Sueur (p. 6) placed in the genus the single nominal species *Lebia ellipsoidea* Le Sueur, 1821 from Florida. Also in 1821, Valenciennes (in Humboldt & Valenciennes, p. 159) referred to the genus 'que M. Cuvier a établi' under the name *Lebias* and named Cuvier's (1816) two new species: *L. rhomboidalis* Valenciennes, 1821 (p. 160, pl. 61, figs. 3, 7) from North America and *L. fasciata* Valenciennes, 1821 from Europe (p. 160, pl. 61, fig. 4). Le Sueur's work was published in January 1821 (as recorded in vol. 2 of the *Journal of the Academy of Natural Sciences of Philadelphia*, in vol. 1, p. 8 of the *Proceedings of the Academy* . . . (1841), and in the 'Index to the scientific contents of the Journal and Proceedings of the Academy . . . 1812–1912' (1913)), while Valenciennes's publication can be dated only to the year 1821 (see Sherborn, 1899, p. 428; Lazara, 1993, p. 1160; and Kottelat, 1997, p. 162). It is clear from Oken (1817), Goldfuss (1820) and other early authors that both *Lebia* and *Lebias* are spellings derived from Cuvier's (1816) vernacular 'Le Lebias' and no author (except Lazara, 1995; see para. 8 below) has ever regarded them as distinct. *Lebia ellipsoidea* Le Sueur, 1821 from Florida is thus the type species of *Lebias* Goldfuss, 1820 by subsequent monotypy.

5. Lazara (1995), putatively acting as the First Revisor, selected *Lebia* as the valid spelling from Le Sueur (1821). His action was invalid, however, because both the spellings *Lebia* and *Lebias* had been published before Le Sueur (1821), by Oken (1817) and Goldfuss (1820) respectively. In any case, Le Sueur (pp. 2, 5, 7) consistently adopted the spelling *Lebia*; on p. 5 'the Lebias' was a plural vernacular use, and on pl. 2 the spelling '*Lebias*' was probably an engraver's error (the specific name *ellipsoidea* was misspelt as '*elipsoides*', and the generic name '*Mollinesia*' in the text was spelt '*Molienisia*' on pl. 3, both being misspellings of *Mollinesia*).

6. In 1846 Valenciennes (in Cuvier & Valenciennes, p. 145) included both the New and Old World cyprinodont species in *Cyprinodon* La Cèpède, 1803, giving *Lebias* (which he cited from Cuvier, 1816) as a junior synonym. Valenciennes synonymised his (1821) American species *L. rhomboidalis* with *C. variegatus* La Cèpède, 1803 (pp. 486, 487), described from Charleston Bay and the type species of *Cyprinodon* by

monotypy. Valenciennes (pp. 146–151) considered that Cuvier (1816) had made a number of errors in his original description of ‘Lebias’, and stated that this description and those of the two nominal species *C. variegatus* and *L. rhomboidalis* had all been based on the same two specimens in the Muséum National d’Histoire Naturelle in Paris. In discussing Cuvier’s work he noted ‘Il y a là une suite de méprises; car il est évident que le genre *Lebias* a été créé pour un poisson qui n’est autre chose que le cyprinodon varié’ (i.e. *Cyprinodon variegatus*). Valenciennes (1846, pp. 173–178) also included in *C. variegatus* the nominal species *Lebias* (sic) *ellipsoidea* Le Sueur, 1821, new material from Lake Pontchartrain, near New Orleans, having been sent to the Paris Museum. Valenciennes (1846, pp. 156–159) retained the name *C. fasciatus* (Valenciennes, 1821) for the European cyprinodont species. Günther (1866, pp. 302, 305) also listed New and Old World cyprinodont species under *Cyprinodon* La Cepède, 1803, citing *Lebias* and *Aphanius* as synonyms and, like Valenciennes (1846), considered *C. variegatus*, *L. rhomboidalis* and *L. ellipsoidea* to refer to the same species. The synonymy of *L. ellipsoidea* with *C. variegatus* rendered the name *Lebias* Goldfuss, 1820 a junior subjective synonym of *Cyprinodon*.

7. Garman (1895, p. 20) also cited *L. ellipsoidea* Le Sueur, 1821 as a synonym of *C. variegatus* La Cepède, 1803; he used (pp. 19–29) the name *Cyprinodon* for New World species and (pp. 29–34), overlooking the consequences of the synonymy of *L. ellipsoidea* with *C. variegatus*, resurrected *Lebias* for Old World species, including *C. fasciatus* (Valenciennes, 1821), and treated *Aphanius* as a junior synonym. Like Günther (1866; see para. 6 above), Boulenger (1907, pp. 406–412) used *Cyprinodon* for both New and Old World species, citing *Lebias* and *Aphanius* as synonyms, and the name *Lebias* dropped from use. Hubbs (1926, p. 16) again separated New and Old World species, adopting the names *Cyprinodon* and *Aphanius* respectively. He was followed by Myers (1931), who commented (p. 12) that ‘*Lebias* is a synonym of *Cyprinodon*, and the European forms belong to *Aphanius*’, Myers (1935, p. 303) and Miller (1948, p. 21), who commented that *Aphanius* was ‘formerly [i.e. by Garman, 1895] called *Lebia* or *Lebias*, a synonym of *Cyprinodon*’. The name *Lebias* had not been used for more than a century until resurrected by Lazara in 1995.

8. Lazara (1995) attempted to separate the spellings *Lebia* and *Lebias* and to apply them to different taxa. He recognised *Lebia*, as of Le Sueur (1821), as a junior synonym of *Cyprinodon*, and by designating *Lebias fasciata* Valenciennes, 1821 as the type species of *Lebias* Goldfuss, 1820, sought to reintroduce *Lebias* in place of *Aphanius* Nardo, 1827 as the name for Old World cyprinodonts (see para. 9 below). As recorded in para. 4 above, *Lebias* and *Lebia* are variant spellings of the same name, i.e. both were based on Cuvier’s ‘Le Lebias’, and *Lebias*, dating from Goldfuss (1820), is the (potentially) valid spelling. The type species of *Lebias* is the American species *Lebia ellipsoidea* Le Sueur, 1821 by subsequent monotypy and Lazara’s (1995) type species designation is invalid. Lazara (1995) acknowledged that the name *Aphanius* had been in use for many years.

9. As noted in para. 1 above, Jordan (1917) selected the first of the nominal species (*A. nanus* Nardo, 1827) included in *Aphanius* Nardo, 1827 as the type species of the genus. He recorded *Aphanius* as a valid genus ‘replacing *Lebias* of authors (not of Cuvier)’. *Aphanius nanus* has been treated as a synonym of *A. fasciatus* Nardo, 1827 and of *Lebias fasciata* Valenciennes, 1821 since at least Garman (1895, pp. 29, 30)

and Boulenger (1907, p. 407), and *A. fasciatus* (Valenciennes, 1821) is thus the valid name for the type species of *Aphanius* (see Wildekamp, 1993, p. 48).

10. Very few authors have followed Lazara (1995) in his use of the name *Lebias* in place of *Aphanius*. The overwhelming use is of the latter name, both in works on taxonomy of Recent and fossil species and in the applied fields of biology, reproduction, genetics, biochemistry, hybridisation, physiology and ecology. Recent representative works, covering systematics, checklists, field guides and conservation documents, in which *Aphanius* has been used are Economidis (1991, 1992), Doadrio, Elvira & Bernat (1991), Gandolfi, Zerunian, Torricelli & Marconato (1991), Wildekamp (1993), Coad (1996), Ferrito & Tigano (1996), Maitland & Crivelli (1996), Kottelat (1997), Maitland (2000), and several papers in the publications edited by Crivelli & Maitland (1995) and by Kirchhofer & Hefti (1996). A search of *Zoological Record on CD* (vols. 115–136) showed a further 162 publications in which the name *Aphanius* has been used between 1978 and 2000 (the complete list is held by the Secretariat of the Commission). It is very desirable that the use of the name *Aphanius* be continued in local, regional, national and international legal instruments, conservation policy documents and Red Lists; a change of name would seriously threaten the efficiency of conservation measures for many of the species concerned, several of which are in danger of immediate extinction.

11. As demonstrated above, the names *Lebia* Oken, 1817 and *Lebias* Goldfuss, 1820 both refer to the same taxon, as had always been accepted until Lazara (1995). The type species is *Lebia ellipsoidea* Le Sueur, 1821 (see para. 4 above), which is a junior subjective synonym of *Cyprinodon variegatus* La Cepède, 1803, the type species of *Cyprinodon* La Cepède, 1803; accordingly *Lebia* and *Lebias* are junior synonyms of *Cyprinodon*. However, Lazara (1995), following Garman (1895), misinterpreted *Lebias* and adopted it instead of *Aphanius* Nardo, 1827 as the valid name for Old World species of tooth carps, even though he acknowledged that *Aphanius* had been in use for many years. In the interests of stability and to avoid misunderstanding, we propose that *Aphanius* should be placed on the Official List and that the name *Lebias* Goldfuss, 1820 should be suppressed.

12. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to suppress the name *Lebias* Goldfuss, 1820 for the purposes of the Principle of Priority but not for those of the Principle of Homonymy;
- (2) to place on the Official List of Generic Names in Zoology the name *Aphanius* Nardo, 1827 (gender: masculine), type species by subsequent designation by Jordan (1917) *Aphanius nanus* Nardo, 1827 (a junior subjective synonym of *Lebias fasciata* Valenciennes in Humboldt & Valenciennes, 1821);
- (3) to place on the Official List of Specific Names in Zoology the name *fasciata* Valenciennes in Humboldt & Valenciennes, 1821, as published in the binomen *Lebias fasciata* (senior subjective synonym of the specific name of *Aphanius nanus* Nardo, 1827, the type species of *Aphanius* Nardo, 1827);
- (4) to place on the Official Index of Rejected and Invalid Generic Names in Zoology the following names:
 - (a) *Lebia* Oken, 1817 (a junior homonym of *Lebia* Latreille, 1802);
 - (b) *Lebias* Goldfuss, 1820 (suppressed in (1) above).

References

- Boulenger, G.A.** 1907. *Zoology of Egypt. The fishes of the Nile*. li, 578 pp. 97 pls. Rees, London.
- Coad, B.W.** 1996. Systematics of the tooth-carp genus *Aphanius* Nardo, 1827 (Actinopterygii: Cyprinodontidae) in Fars Province, southern Iran. *Biologia* (Bratislava), **51**(2): 163–172.
- Crivelli, A.J. & Maitland, P.S.** (Eds.). 1995. Endemic freshwater fishes of the northern Mediterranean region. *Biological Conservation*, **72**: 121–337.
- Cuvier, G.L.** 1816. *Le Règne Animal distribué d'après son organisation . . . Les reptiles, les poissons, les mollusques et les annélides*, vol. 2. Déterville, Paris.
- Doadrio, I., Elvira, B. & Bernat, Y.** 1991. *Peces continentales españolas. Inventario y clasificación de zonas fluviales*. 221 pp. Icona, Madrid.
- Economidis, P.S.** 1991. *Check list of freshwater fishes of Greece*. 48 pp. Hellenic Society for the Protection of Nature, Athens.
- Economidis, P.S.** 1992. Fishes. Pp. 43–81 in Karandinos, M. & Paraschi, L. (Eds.), *The Red Data Book of threatened vertebrates of Greece*. Hellenic Zoological Society & Hellenic Ornithological Society, Athens.
- Ferrito, V. & Tigano, C.** 1996. Decline of *Aphanius fasciatus* (Cyprinodontidae) and *Salaria fluviatilis* (Blenniidae) populations in freshwaters of eastern Sicily. *Ichthyological Exploration of Freshwaters*, **7**(2): 181–184.
- Gandolfi, G., Zerunian, S., Torricelli, P. & Marconato, A.** 1991. *I pesci delle acque interne italiane*. 597 pp., 9 pls. Istituto Poligrafico e Zecca dello Stato, Roma.
- Garman, S.** 1895. The cyprinodonts. *Memoirs of the Museum of Comparative Zoology*, Harvard, **19**: 1–179.
- Gill, T.** 1903. On some fish genera of the first edition of Cuvier's *Règne Animal* and Oken's names. *Proceedings of the United States National Museum*, **26**: 965–967.
- Goldfuss, G.A.** 1820. *Handbuch der Zoologie*, vol. 2. xxiv, 510 pp., 4 pls. Schrag, Nürnberg.
- Günther, A.** 1866. *Catalogue of the fishes in the British Museum*, vol. 6. xv, 368 pp. British Museum, London.
- Hubbs, C.L.** 1926. Studies of the fishes of the Order Cyprinodontes. VI. Material for a revision of the American genera and species. *Miscellaneous Publications. Museum of Zoology, University of Michigan*, **16**: 1–87.
- Humboldt, A. de & Valenciennes, A.** 1821. Recherches sur les poissons fluviatiles de l'Amérique équinoxiale. Pp. 145–216, pls. 45–51 in Humboldt, A. de & Bonpland, A., *Voyage aux régions équinoxiales du nouveau continent, fait en 1799, 1800, 1801, 1802, 1803 et 1804*, vol. 2, part 11 (Recueil d'observations de zoologie et d'anatomie comparées faites dans l'Océan Atlantique, dans l'intérieur du nouveau continent et dans la mer du sud . . .). Schoell, Paris.
- IUCN.** 1996. *1996 IUCN Red List of threatened animals*. IUCN, Gland & Cambridge.
- Jordan, D.S.** 1917. The genera of fishes, from Linnaeus to Cuvier, 1758–1833, seventy-five years with the accepted type of each. A contribution to the stability of scientific nomenclature. *Leland Stanford Junior University Publications, University Series*, **27**: 1–161.
- Kirchhofer, A. & Hefti, D.** (Eds.) 1996. *Conservation of endangered freshwater fish in Europe*. xii, 341 pp. Birkhäuser, Basel.
- Kottelat, M.** 1997. European freshwater fishes. An heuristic checklist of the freshwater fishes of Europe (exclusive of former USSR), with an introduction for non-systematists and comments on nomenclature and conservation. *Biologia* (Bratislava), Section Zoology, **52** (Suppl. 5): 1–271
- La Cèpède, B.** 1803. *Histoire naturelle des poissons*, vol. 5. xlviii, 803 pp., 21 pls. Paris.
- Lazara, K.J.** 1993. Dating and authorship of new species described in Humboldt and Valenciennes' 'Recherches sur les poissons fluviatiles de l'Amérique équinoxiale'. *Copeia*, **1993**(4): 1160–1161.
- Lazara, K.J.** 1995. History of the genera *Lebia* Oken 1817 and *Lebias* Goldfuss 1820 (Teleostei: Cyprinodontiformes: Cyprinodontidae) with designation of a type species for *Lebias*. *Copeia*, **1995**(2): 501–503.

- Le Sueur, C.A.** 1821. Description of a new genus, and of several new species of freshwater fish, indigenous to the United States. *Journal of the Academy of Natural Sciences of Philadelphia*, **2**: 2–8.
- Maitland, P.S.** 2000. *Guide to freshwater fish of Britain and Europe*. 256 pp. Hamlyn, London.
- Maitland, P.S. & Crivelli, A.J.** 1996. *Conservation des poissons d'eau douce*. 94 pp. Tour du Valat, Arles.
- Miller, R.R.** 1948. The cyprinodont fishes of the Death Valley system of eastern California and southwestern Nevada. *Miscellaneous Publications. Museum of Zoology, University of Michigan*, **68**: 1–155.
- Myers, G.S.** 1931. The primary groups of oviparous cyprinodont fishes. *Stanford University Publications, University Series, Biological Sciences*, **6**(3): 1–14.
- Myers, G.S.** 1935. An annotated list of the cyprinodont fishes of Hispaniola, with descriptions of two new species. *Zoologica*, **10**(3): 301–316.
- Nardo, J.D.** 1827a. Prodromus observationum et disquisitionum Adriaticae ichthyologiae. *Giornale di Fisica, Chimica, Storia naturale, Medicina ed Arti* (Pavia), Decade Seconde, **10**: 22–40.
- Nardo, J.D.** 1827b. Prodromus observationum et disquisitionum ichthyologiae Adriaticae. *Isis* (von Oken), **20**(6): 472–489.
- Oken, L.** 1817. Cuviers und Okens Zoologien neben einander gestellt. *Isis*, **1**: 1145–1185 (irregularly numbered).
- Sherborn, C.D.** 1899. A note on the date of the parts of 'Humboldt and Bonpland's Voyage; Observations de Zoologie'. *The Annals and Magazine of Natural History*, (7)**3**(17): 428.
- Valenciennes, A.** 1846. Vol. 18 in Cuvier, G.L. & Valenciennes, A., *Histoire naturelle des poissons*. xix, 505 pp. Paris.
- Wildekamp, R.H.** 1993. *A world of killies. Atlas of the oviparous cyprinodontiform fishes of the world*, vol. 1. 311 pp. American Killifish Association, Mishawaka.

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Case 3172***Leptodactylus chaquensis* Cei, 1950 (Amphibia, Anura): proposed conservation of the specific name**

José M. Cei

Departamento Ciencias Naturales, Facultad Ciencias Exactas y Naturales, Universidad Nacional de Río Cuarto, 5800-Río Cuarto, Córdoba, Argentina
(e-mail: fvidela@lab.cricyt.edu.ar)

Abstract. The purpose of this application is to conserve the widely used name *Leptodactylus chaquensis* Cei, 1950 for a subtropical South American frog. The term *typica* was applied in 1948 to what was then supposed to be a 'forma' of *L. ocellatus* Linnaeus, 1758; under Article 45.6.4 of the Code the name *L. typicus* Cei, 1948 is available as a senior synonym of *L. chaquensis*, but it has never been used and its suppression is proposed.

Keywords. Nomenclature; taxonomy; Anura; LEPTODACTYLIDAE; *Leptodactylus*; *Leptodactylus chaquensis*; *Leptodactylus ocellatus*; frogs; South America.

1. In a paper (Cei, 1948) on the seasonal reproductive behaviour of the Argentinian frog *Leptodactylus ocellatus* (Linnaeus, 1758) I described (pp. 308–312) two 'razas' (races) or 'formas', to which I applied, for purposes of discussion, the terms '*typica*' and '*reticulata*'. Other aspects of their reproductive behaviour were described the following year (Cei, 1949).

2. It subsequently became clear that the 'forma' which I had called '*typica*' is a species distinct from *L. ocellatus*, and in a taxonomic account (Cei, 1950) of this group of frogs I established the name *Leptodactylus chaquensis* Cei, 1950 (p. 417) for the taxon. A further discussion of the taxonomy and distribution of the species is given in Cei (1980, pp. 348–352).

3. Nobody has ever used '*typica*' as a valid species-group name, or since Cei (1950) even cited it in the synonymy of *L. chaquensis*. In contrast, the name *L. chaquensis* has been used in a very large number of works, and I give here some examples.

Taxonomic works: Cei, 1980; Frost, 1985; De La Riva, Kohler, Lötters & Reichle, 2000;

Faunistic works: Lynch, 1971; Gallardo, 1979; Gudynas, 1984; Lavilla, Cruz & Scrocchi, 1995; De La Riva & Maldonado, 1999;

Biological and biochemical works: Erspamer, Roseghini & Cei, 1964; Barrio, 1966; Heyer, 1969; Duellman & Trueb, 1986; Roseghini, Erspamer, Falconieri Erspamer & Cei, 1986; Yanosky, Mercolli & Dixon, 1995.

A list of 41 works using the name *Leptodactylus chaquensis* Cei, 1950 has been given to the Commission Secretariat, and more could be supplied.

4. I have become aware, as a result of a message (August 2000) from Dr Darrel Frost, that the terms '*typica*' and '*reticulata*' which I had used in 1948 (see para. 1 above) to refer to two supposed 'formas' (hence their feminine endings) of

Leptodactylus ocellatus are, under Article 45.6.4 of the Code, deemed to be available names established at subspecific rank (contrary to my then intention). The name *typica* (or *typicus*) Cei, 1948 is thus a senior synonym of the specific name of *L. chaquensis* Cei, 1950. However, since *L. chaquensis* has had very extensive usage but nobody has ever used (or even published) the combination *L. typicus* it would be very confusing now to introduce the latter name.

5. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to suppress the name *typica* Cei, 1948, as published in the combination *Leptodactylus ocellatus* forma *typica*, for the purposes of the Principle of Priority but not for those of the Principle of Homonymy;
- (2) to place on the Official List of Specific Names in Zoology the name *chaquensis* Cei, 1950, as published in the binomen *Leptodactylus chaquensis*;
- (3) to place on the Official Index of Rejected and Invalid Specific Names in Zoology the name *typica* Cei, 1948, as published in the combination *Leptodactylus ocellatus* forma *typica* and as suppressed in (1) above.

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I thank Dr Darrel Frost (American Museum of Natural History, New York) for drawing my attention to this matter.

References

- Barrio, A. 1966. Diversidad acustica entre el canto nupcial de *Leptodactylus ocellatus* y *L. chaquensis*. *Physis* (Buenos Aires), **26**: 275–277.
- Cei, J.M. 1948. El ritmo estacional en los fenomenos ciclicos endocrino-sexuales de la rana criolla (*Leptodactylus ocellatus* (L.)). *Acta Zoologica Lilloana*, **6**: 283–331.
- Cei, J.M. 1949. Factores genético-raciales que diferencian la regulacion hormonal del ciclo sexual en *Lepidodactylus ocellatus* de la Argentina. ‘Razas de temperatura’ y sus relaciones con algunas características climaticas regionales. *Acta Zoologica Lilloana*, **7**: 113–134.
- Cei, J.M. 1950. *Leptodactylus chaquensis* n. sp. y el valor systematico real de la especie *Leptodactylus ocellatus* en la Argentina. *Acta Zoologica Lilloana*, **9**: 395–423.
- Cei, J.M. 1980. Amphibians of Argentina. *Monografia 2, Monitore Zoologico Italiano*. 599 pp.
- De La Riva, I., Kohler, J., Lötters, S. & Reichle, S. 2000. Ten years of research on Bolivian amphibians: updated checklist, distribution, taxonomic problems, literature and iconography. *Revista Española de Herpetologia*, **14**: 19–164.
- De La Riva, I. & Maldonado, M. 1999. First record of *Leptodactylus ocellatus* (Linnaeus, 1758) in Bolivia and comments on related forms. *Graellsia*, **55**: 193–197.
- Duellman, W.E. & Trueb, L. 1986. *Biology of Amphibians*. 669 pp. McGraw Hill, New York.
- Erspamer, V., Roseghini, M. & Cei, J.M. 1964. Indole, imidazole and phenylalkylamines in the skin of thirteen *Leptodactylus* species. *Biochemical Pharmacology*, **13**: 1083–1093.
- Frost, D. 1985. *Amphibian species of the world. Taxonomic and geographical references*. 732 pp. Allen Press, Lawrence, Kansas.
- Gallardo, J.M. 1979. Composición, distribución y origen de la herpetofauna chaqueñas. Pp. 299–307 in Duellman, W.E. (Ed.), *The South American herpetofauna: its origin, evolution and dispersal*. Monograph 7, Museum of Natural History of the University of Kansas.
- Gudynas, E. 1984. Sobre el Rio Uruguay como barrera biogeográfica para Anfíbios y la significación de la presencia de *Leptodactylus chaquensis* Cei, 1950 en el Uruguay. *Bolettino della Società Zoologica de Uruguay*, **2**: 78–89.
- Heyer, W.R. 1969. The adaptive ecology of the species groups of the genus *Leptodactylus*. *Evolution*, **23**: 421–428.

- Lavilla, E.O., Cruz, F.B. & Scrocchi, G.J.** 1995. Amphibiens et reptiles de la Station Biologique 'Los Colorados' dans le province de Salta, Argentine. *Revue française d'Aquariologie*, **22**(1-2): 51-128.
- Lynch, J.D.** 1971. Evolutionary relationships, osteology and zoogeography of leptodactyloid frogs. *Miscellaneous Publications of the University of Kansas*, no. 53. 238 pp.
- Roseghini, M., Erspamer, V., Falconieri Erspamer, G. & Cei, J.M.** 1986. Indole, imidazole and phenylalkylamines in the skin of one hundred and forty American amphibian species other than Bufonids. *Comparative Biochemistry and Physiology*, **85C**: 139-142.
- Yanosky, A.A., Mercolli, C. & Dixon, J.R.** 1995. Some aspects of the ecology of two sympatric species, *Leptodactylus ocellatus* (Linnaeus, 1758) and *Leptodactylus chaquensis* Cei, 1950, in the humid Chaco of Argentina. *Bulletin of the Maryland Herpetological Society*, **31**(2): 78-92.

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Case 3173

Phrynidium crucigerum Lichtenstein & Martens, 1856 (currently *Atelopus cruciger*; Amphibia, Anura): proposed conservation of the specific name by the designation of a neotype

Stefan Lötters

Institute of Zoology, University of Mainz, Saarstrasse 21, 55099 Mainz, Germany (e-mail: stefan@oekologie.biologie.uni-mainz.de)

Enrique La Marca

Laboratorio de Biogeografía, Facultad de Ciencias Forestales y Ambientales, Universidad de Los Andes, Apartado Postal 116, Mérida 5101-A, Venezuela (e-mail: lamarca57@cantv.net)

Abstract. The purpose of this application is to conserve the usage of the specific name of *Atelopus cruciger* (Lichtenstein & Martens, 1856) for a harlequin frog from coastal Venezuela. The nominal species was originally based on material collected in Central America, but the name has been in use for a species from Venezuela. A lectotype designated by Lötters, Böhme & Günther (1998) made *A. cruciger* a junior subjective synonym of *A. varius* (Lichtenstein & Martens, 1856). A female specimen, ZSM 93/1947/10 in the Zoologische Staatssammlung, Munich, from coastal Venezuela is proposed as neotype of *A. cruciger* to conserve the usage of the name.

Keywords. Nomenclature; taxonomy; Amphibia; Anura; BUFONIDAE; *Atelopus cruciger*; *Atelopus varius*; Venezuela; Neotropics.

1. Lichtenstein & Martens (1856, p. 41) established the genus *Phrynidium* for two species of harlequin frogs *P. cruciger* and *P. varius* from material collected by the Polish botanist J. Warszewicz from 'Veragoa' (Veraguas, western Panama). The genus *Phrynidium* is currently regarded as a synonym of *Atelopus* Duméril & Bibron, 1841, family BUFONIDAE (see Frost, 1985, p. 29). Since Frost (1985) the name *A. varius* has been consistently used for Central American *Atelopus* (see Lötters, 1996, p. 52).

2. The first comprehensive description of *Atelopus* from coastal Venezuela was based on specimens at the Zoologische Staatssammlung, Munich, collected by C. Vogl (Müller, 1934, p. 146, who used the name *A. cruciger*). The name *A. cruciger*, with a few exceptions (e.g. Dunn, 1931, p. 395), has been consistently applied to specimens from coastal Venezuela because they usually bear a conspicuous dorsal cross pattern, thus matching one aspect of the poor original description of *A. cruciger* (e.g. Müller, 1934, p. 146). Rivero (1961, p. 173) suggested that the Panama type locality of *Phrynidium crucigerum* was an error due to confusion between three specimens in the Museum für Naturkunde, Berlin (which he cited as 'co-types' of *A. cruciger*, but giving the catalogue number 'ZMB 3387', an error for ZMB 3381), and

types of the leptodactylid frog *Eleutherodactylus gollmeri* Peters, 1863 described from 'Caracas', Venezuela. Specimens from Venezuela, currently called *A. cruciger*, possess well developed dorsal and lateral warts while the genus *Phrynidium* (described with its two originally included species *P. varium* and *P. crucigerum*) was defined to have smooth skin (Lichtenstein & Martens, 1856, p. 40). The original description of *P. crucigerum* is clearly not applicable to any Venezuelan species (Lötters, Böhme & Günther, 1998, p. 177).

3. A specimen, ZMB 3380, with a dorsal cross pattern, catalogued as *Atelopus varius* in the Museum für Naturkunde, Berlin, from 'Veragoa' (Veraguas, Panama) fits the original description of *Phrynidium crucigerum* and was considered by Lötters, Böhme & Günther (1998) to represent one of the original syntypes. It was designated as the lectotype of *P. crucigerum* by Lötters, Böhme & Günther (1998, p. 178) who noted that its exact place of origin in Central America was uncertain.

4. The name *Atelopus cruciger* has been widely used for the *Atelopus* from coastal Venezuela with a dorsal cross pattern in scientific publications dealing with different biological aspects (see Lötters, 1996, p. 22). Hence, it is not in the interest of stability to treat *A. cruciger* as a synonym of *A. varius* (as was done by Lötters, Böhme & Günther, 1998) which would require the description of the Venezuelan *Atelopus* as a new species.

5. We propose setting aside all previous type fixations and the designation of a neotype for *Phrynidium crucigerum* Lichtenstein & Martens, 1856 that is of known provenance and consistent with usage of the specific name. We therefore propose as neotype specimen ZSM 93/1947/10 in the Zoologische Staatssammlung, Munich, from the vicinity of Rancho Grande on the road from Maracay to Ocumare de la Costa (ca. 1000 m above sea level), Estado Aragua, Venezuela (col. Pater Cornelius Vogl, 11 November 1930). The specimen ZSM 93/1947/10 is a female having 39.7 mm snout-vent length, 18.5 mm tibia length, 10.0 mm head width at broadest, 4.7 mm distance from tip of finger I to outer edge of outer metacarpal tubercle. In dorsal view, snout pointed; upper jaw protrudes beyond lower; tympanic membrane, tympanic ring and ostia pharyngea absent; small rounded warts (in part conical) present on dorsolateral and lateral surfaces behind eye, continuing in a dorsolateral row, on posterior dorsum and dorsal surfaces of extremities. Foot webbing formula (following the system of Savage & Heyer, 1967, as modified by Myers & Duellman, 1982, p. 6) is $\text{I0} - 1 - \text{II0} - 1^+ \text{III0}^+ - 2\text{IV}2 - 0 - \text{V}$. Coloration in preservative is tan with dark brown dorsal marbling and the typical cross pattern from above the eye to the suprascapular region; laterally from snout to groin with a dark brown lateral band, from behind eye above bordered by tan conical warts.

6. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to set aside all previous type fixations for the nominal species *Phrynidium crucigerum* Lichtenstein & Martens, 1856 and to designate the specimen ZSM 93/1947/10, Zoologische Staatssammlung, Munich, for which the data are given in para. 5 above, as the neotype;
- (2) to place on the Official List of Specific Names in Zoology the name *crucigerum* Lichtenstein & Martens, 1856, as published in the binomen *Phrynidium crucigerum* and as defined by the neotype designated in (1) above.

References

- Dunn, E.R.** 1931. New frogs from Panama and Costa Rica. *Occasional Papers of the Boston Society of Natural History*, **5**: 385–401.
- Frost, D.R.** (Ed.). 1985. *Amphibian species of the world. A taxonomic and geographical reference*. v, 732 pp. Allen Press & the Association of Systematics Collections, Lawrence, Kansas.
- Lichtenstein, M.H.C. & Martens, E.** 1856. *Nomenclator reptilium et amphibiorum musei zoologici berlinensis*. 48 pp. Berlin.
- Lötters, S.** 1996. *The neotropical toad genus Atelopus*. 143 pp., 16 pls. Vences & Glaw, Köln.
- Lötters, S., Böhme, W. & Günther, R.** 1998. Notes on the type material of the neotropical harlequin frogs *Atelopus varius* (Lichtenstein & Martens, 1856) and *Atelopus cruciger* (Lichtenstein & Martens, 1856) deposited in the Museum für Naturkunde of Berlin (Anura, Bufonidae). *Mitteilungen aus dem Zoologischen Museum in Berlin*, **2**: 173–184.
- Müller, L.** 1934. Über eine neue Rasse von *Atelopus cruciger* (Licht. u. Marts) von Venezuela. *Zoologischer Anzeiger*, **108**: 145–155.
- Myers, C.W. & Duellman, W.E.** 1982. A new species of *Hyla* from Cerro Colorado, and other tree frog records and geographical notes from western Panama. *American Museum Novitates*, **2752**: 1–32.
- Rivero, J.A.** 1961. Salientia of Venezuela. *Bulletin of the Museum of Comparative Zoology, Harvard University*, **126**: 1–207.
- Savage, J.M. & Heyer, R.W.** 1967. Variation and distribution of the tree frog genus *Phyllomedusa* in Costa Rica, Central America. *Beiträge zur Neotropischen Fauna*, **5**: 111–131.

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).

Case 3145***Dactyloa biporcata* Wiegmann, 1834 (currently *Anolis biporcatus*) and *Anolis petersii* Bocourt, 1873 (Reptilia, Sauria): proposed conservation of the specific names and designation of a neotype for *A. biporcatus***

Gunther Köhler

Forschungsinstitut und Naturmuseum Senckenberg, Sektion Herpetologie, Senckenberganlage 25, D-60325 Frankfurt a.M., Germany.
(e-mail: gkoehler@sng.uni-frankfurt.de)

Aaron M. Bauer

Villanova University, 800 Lancaster Avenue, Villanova, PA 19085-1699, U.S.A. (e-mail: aaron.bauer@villanova.edu)

Abstract. The purpose of this application is to conserve the specific names of *Anolis biporcatus* (Wiegmann, 1834) and *Anolis petersii* Bocourt, 1873 in their accustomed usages. The holotype of the former species is conspecific with the syntypes of the latter; however, for almost 60 years the name *A. petersii* has been applied to the species represented by these types. For the same period of time the name *A. biporcatus* has been consistently applied to another taxonomic species, of which the holotype of *Anolis copei* Bocourt, 1873 is representative. It is proposed that the holotype of *A. biporcatus* be set aside and the holotype of *A. copei* be designated the neotype of *A. biporcatus* in order to stabilize the current and long established usage of the names *Anolis biporcatus* and *A. petersii*.

Keywords. Nomenclature; taxonomy; Reptilia; Sauria; IGUANIDAE; *Anolis biporcatus*; *Anolis petersii*; *Anolis copei*; lizards; anoles; Central America.

1. Species of *Anolis* Daudin, 1802, commonly called anoles, have been regarded model organisms for studying many aspects of lizard biology and are frequently cited in non-taxonomic literature. Throughout their range it is common for numerous species of anoles to occur together.

2. Wiegmann (1834, pp. 47–48) established the name *Dactyloa biporcata* for an anole from ‘Mexico’ based on a female specimen ZMB 524 in the Museum für Naturkunde der Humboldt-Universität zu Berlin, Berlin.

3. Bocourt (1873, pp. 77–80) established two species: *Anolis copei* based on one specimen MNHN 2426 in the Muséum national d’Histoire naturelle, Paris from ‘Santa Rosa de Pansos, (Guatemala)’ and *Anolis petersii* based on two syntypes MNHN 2479 and 2479A, both from Alta Verapaz, Guatemala.

4. Until the early 1940s most authors (e.g. O’Shaughnessy, 1875; Boulenger, 1885; Günther, 1885; Dunn, 1930; Dunn & Emlen, 1932; Oeser, 1933; Barbour, 1934; Ahl, 1940; Slevin, 1942) used the name *Anolis biporcatus* for the northern Caribbean versant populations of the species *A. lemurinus* Cope, 1861 while the green coloured (in life), short-legged giant anole, distributed from southeastern Mexico through

Central America to northwestern South America, currently known as *A. biporcatus*, was referred to as *Anolis copei* (or '*copeii*') Bocourt, 1873.

5. Schmidt (1941, p. 491), on advice from L.C. Stuart (in litt.), proposed that individuals previously considered to be *Anolis biporcatus* should be referred to as *A. bourgeaei* Bocourt, 1873 and that specimens recorded as *A. copei* should be called *A. biporcatus* (Wiegmann, 1834). This usage has been maintained ever since. Stuart apparently based his advice on the type descriptions of the three species, but may not have examined all the types directly.

6. We have studied the holotype of *Dactyloa biporcata* and one of us (G.K.) has examined the holotype of *Anolis copei* as well as both syntypes of *A. petersii*. The holotype of *D. biporcata* has mostly smooth (some weakly keeled) dorsal head scales, ventral scales faintly keeled with rounded posterior margins as well as a head and body pattern typical of *A. petersii* of current usage, including dark brown streaks and spots in the gular region. The comparison of these specimens revealed that the holotype of *D. biporcata* is conspecific with the syntypes of *A. petersii*, and that these represent the taxonomic species *A. petersii* of current usage. The holotype of *A. copei* represents the taxonomic species *A. biporcatus* of current usage.

7. The name *Anolis petersii* has been used consistently for a well known anole lizard from the highlands of Guatemala and southern Mexico for 128 years since its original description by Bocourt (1873) (e.g. Boulenger, 1885, p. 66; Dunn, 1930, p. 19; Barbour, 1934, p. 146; Stuart, 1948, p. 51; Smith & Taylor, 1950, p. 65; Smith & Kerster, 1955, p. 201; Stuart, 1955, p. 21; McCranie & Wilson, 1985, p. 107).

8. The name *Anolis biporcatus* has been applied consistently to a well known and widespread species since the early 1940s (Schmidt, 1941; Stuart, 1948, p. 46; Smith & Taylor, 1950, p. 65; Smith & Kerster, 1955, p. 193; Stuart, 1955, p. 13; Taylor, 1956, p. 133; Gorman & Atkins, 1966, p. 581; Williams, 1966; Fitch, 1975, p. 37; Henderson & Hoevers, 1975, p. 23; McCoy, 1975, p. 65; Fitch & Seigel, 1984, p. 3; Savage & Villa, 1986, p. 15; Lee, 1996, p. 227; Köhler, 1999, p. 50). A further 18 references have been given to the Commission Secretariat.

9. Strict application of the Principle of Priority would require replacement of the name *Anolis petersii* Bocourt, 1873 by *A. biporcatus* (Wiegmann, 1834). The species commonly known as *A. biporcatus* since Schmidt (1941) would likewise be renamed *A. copei* Bocourt, 1873. Such action would not be in the interest of stability and would cause confusion. This is especially so given the widespread use of *Anolis* spp. as model organisms in a variety of biological investigations (Huey, Pianka & Schoener, 1983), and the frequent use of these particular names in recent authoritative guides to the Mexican and Central American herpetofauna (e.g. Flores-Villela, 1993; Lee, 1996; Campbell, 1998).

10. We propose, in accordance with Article 75.6 of the Code, that confusion would be avoided by setting aside the holotype of *Dactyloa biporcata* Wiegmann, 1834 and conserving the specific name in accordance with prevailing usage by designating the holotype of *Anolis copei* Bocourt, 1873 (MNHM 2426) as the neotype of *D. biporcata*. This action would also conserve the name *Anolis petersii* Bocourt, 1873 and render the name *A. copei* a junior objective synonym of *A. biporcatus* (Wiegmann, 1834).

11. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to set aside all previous type fixations for *Dactyloa biporcata* Wiegmann, 1834 and to designate the holotype of *Anolis copei* Bocourt, 1873 (MNHM 2426) as the neotype;
- (2) to place on the Official List of Specific Names in Zoology the following names:
 - (a) *biporcata* Wiegmann, 1834, as published in the binomen *Dactyloa biporcata* and as defined by the neotype designated in (1) above;
 - (b) *petersii* Bocourt, 1873, as published in the binomen *Anolis petersii* and as defined by the syntypes described in para. 3 above;
- (3) to place on the Official Index of Rejected and Invalid Specific Names in Zoology the name *copei* Bocourt, 1873, as published in the binomen *Anolis copei* (a junior objective synonym of *Dactyloa biporcata* Wiegmann, 1834).

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References

- Ahl, E. 1940. Über eine Sammlung von Reptilien aus El Salvador. *Sitzungsberichte der Gesellschaft naturforschender Freunde zu Berlin*, **1940**: 245–248.
- Barbour, T. 1934. The anoles. II. The mainland species from Mexico southward. *Bulletin of the Museum of Comparative Zoology*, Harvard University, **77**: 121–155.
- Bocourt, M.F. 1873. In Duméril, M.A., Bocourt, M. & Mocquard, M. (Eds.), *Recherches Zoologiques*. Vol. 3, (Section 1). Etudes sur les reptiles et les Batraciens. *Mission Scientifique au Mexique et dans l'Amérique Centrale*. 860 pp. Paris
- Boulenger, G.A. 1885. *Catalogue of the lizards in the British Museum (Natural History)*, Ed. 2, vol. 2. 497 pp. Trustees of the British Museum, London.
- Campbell, J.A. 1998. *Amphibians and reptiles of northern Guatemala, the Yucatán, and Belize*. 380 pp. University of Oklahoma Press, Norman.
- Dunn, E.R. 1930. Notes on Central American anoles. *Proceedings of the New England Zoological Club*, **12**: 15–24.
- Dunn, E.R. & Emlen, J.T. 1932. Reptiles and amphibians from Honduras. *Proceedings of the Academy of Natural Sciences of Philadelphia*, **84**: 21–32.
- Fitch, H.S. 1975. Sympatry and relationships in Costa Rican anoles. *Occasional Papers of the Museum of Natural History, The University of Kansas*, **40**: 1–60.
- Fitch, H.S. & Seigel, R.A. 1984. Ecological and taxonomic notes on Nicaraguan anoles. *Milwaukee Public Museum Contributions in Biology and Geology*, **57**: 1–13.
- Flores-Villela, O. 1993. Herpetofauna Mexicana. *Carnegie Museum of Natural History Special Publication*, **17**: 1–73.
- Gorman, G.C. & Atkins, L. 1966. Chromosomal heteromorphism in some male lizards of the genus *Anolis*. *American Naturalist*, **100**(916): 579–583.
- Günther, A.C.L.G. 1885. Reptilia and Batrachia, Part 1. xx, 326 pp., 76 pls. in Godman & Salvin (Eds.), *Biologia Centrali-Americana*. London.
- Henderson, R.W. & Hoevers, L.G. 1975. A checklist and key to the amphibians and reptiles of Belize, Central America. *Milwaukee Public Museum Contributions in Biology and Geology*, **5**: 1–63.
- Huey, R.B., Pianka, E.R. & Schoener, T.W. (Eds.). 1983. *Lizard ecology, studies of a model organism*. 501 pp. Harvard University Press, Cambridge.
- Köhler, G. 1999. The amphibians and reptiles of Nicaragua: a distributional checklist with keys. *Courier Forschungsinstitut Senckenberg*, **213**: 1–121.
- Lee, J.C. 1996. *The amphibians and reptiles of the Yucatán Peninsula*. 500 pp. Cornell University Press, Ithaca & London.

- McCoy, C.J.** 1975. Reproduction in Guatemalan *Anolis biporcatus* (Sauria: Iguanidae). *Herpetologica*, **31**(1): 65–66.
- McCranie, J.R. & Wilson, L.D.** 1985. *Plectrohyla matudai* Hartweg and *Norops petersi* (Bocourt): additions to the herpetofauna of Honduras. *Herpetological Review*, **16**(4): 107–108.
- Oeser, R.** 1933. Meine Centralamerika-Reise. *Blätter für Aquarien und Terrarienkunde*, **44**: 256–261.
- O'Shaughnessy, A.W.E.** 1875. List and revision of the species of Anolidae in the British Museum collection, with descriptions of new species. *Annals and Magazine of Natural History, London*, (4)**15**: 270–281.
- Savage, J.M. & Villa, J.** 1986. Introduction to the Herpetofauna of Costa Rica. *Contributions to Herpetology: Society for the Study of Amphibians and Reptiles*, **3**: 1–207.
- Schmidt, K.P.** 1941. The amphibians and reptiles of British Honduras. *Zoological Series of the Field Museum of Natural History*, Chicago, **22**: 475–510.
- Slevin, J.R.** 1942. Notes on a collection of reptiles and amphibians from Guatemala. *Proceedings of the California Academy of Sciences*, (4)**23**(31): 453–462.
- Smith, H.M. & Kerster, H.W.** 1955. New and noteworthy Mexican lizards of the genus *Anolis*. *Herpetologica*, **11**: 193–201.
- Smith, H.M. & Taylor, E.H.** 1950. An annotated checklist and key to the reptiles of Mexico exclusive of the snakes. *Bulletin of the United States National Museum*, **199**: 1–253.
- Stuart, L.C.** 1948. The amphibians and reptiles of Alta Verapaz, Guatemala. *Miscellaneous Publications of the Museum of Zoology, University of Michigan*, **69**: 1–109.
- Stuart, L.C.** 1955. A brief review of the Guatemalan lizards of the genus *Anolis*. *Miscellaneous Publications of the Museum of Zoology, University of Michigan*, **91**: 1–31.
- Taylor, E.H.** 1956. A review of the lizards of Costa Rica. *University of Kansas Science Bulletin*, **38**(1): 1–322.
- Wiegmann, A.F.A.** 1834. *Herpetologia mexicana, seu Descriptio amphibiorum Novae Hispaniae, quae itineribus Comitum de Sack, F. Deppe et C.G. Schiede in Museum Zoologicum Berolinense pervenerunt*. Pars prima Saurorum species amplectens, &c. vi, 54 pp., 10 pls. Lüderitz, Berlin.
- Williams, E.E.** 1966. South American anoles: *Anolis biporcatus* and *Anolis fraseri* (Sauria, Iguanidae) compared. *Breviora*, **239**: 1–14.

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Case 3178***Hippotragus* Sundevall, 1845 (Mammalia, Artiodactyla): proposed conservation**

Peter Grubb

35 Downhills Park Road, London N17 6PE, U.K.

Abstract. The purpose of this application is to conserve the name *Hippotragus* Sundevall, 1845 for the African roan, sable and blaauwbok antelopes, and a number of Pliocene and Pleistocene African and southern Asian fossil species. The name was suppressed in Direction 23 (1955) on the grounds that it had been overlooked in Opinion 109 (1929), in which *Hippotragus* Sundevall, 1846 was placed on the Official List. As a consequence the family-group name HIPPOTRAGINAE Sundevall, 1845 became unavailable. The names are usually cited as *Hippotragus* Sundevall, 1846 and HIPPOTRAGINAE Brooke in Wallace, 1876, although both names were published earlier in, and have been cited from, a further 1845 publication. The present application seeks to stabilise the nomenclature of hippotragine antelopes at the species, genus and family-group levels.

Keywords. Nomenclature; taxonomy; Mammalia; Artiodactyla; HIPPOTRAGINAE; *Hippotragus*; *Hippotragus equinus*; *Hippotragus niger*; *Hippotragus leucophaeus*; antelopes; roan; sable; blaauwbok; Recent; Pliocene; Pleistocene; Africa.

1. The proposal to conserve the name *Hippotragus* for the extant roan and sable antelopes of much of Africa, the extinct blaauwbok of southwestern South Africa, and a number of fossil species from the Pliocene of southern Asia and the Pliocene and Pleistocene of Africa, which was submitted in 1914 by seven mammal specialists, has had a long history. The authorship and dates of publication of the generic name and of the family-group name HIPPOTRAGINAE are still controversial, as is the type species fixation for *Hippotragus*, and these uncertainties are a cause of instability and confusion.

2. The name *Hippotragus* was first proposed (without citation of authorship or date) for conservation by the suppression of the unused synonyms *Egocerus* (of Desmarest, 1822) and *Ozanna* (of Reichenbach, 1845) in an application which was published in four journals, including vol. 40 of *Science*, in July 1914. *Antilope leucophaea* (of Pallas, 1766, p. 4), the extinct South African blaauwbok, was given as the nominal type species. The proposal received a two-thirds majority but failed to reach the then required unanimous vote (Opinion 90, December 1925). Following referral to, and recommendation by, a Special Committee (two Commission members and one previous Commission member), the proposal was sent for a revote. The case was approved and the name *Hippotragus* Sundevall, 1846 (p. 196), with the type species designated as *Antilope leucophaea*, was placed on the Official List (Opinion 109, June 1929). The names *Egoceros* (together with several incorrect subsequent

spellings) and *Ozanna* were suppressed. Later, Ellerman, Morrison-Scott & Hayman (1953, p. 198) noted that Sundevall had also published the name *Hippotragus* at an earlier date (1845) in *Öfversigt af Kongl. Vetenskaps-Akademiens Förhandlingar* (p. 31), with *Antilope equina* Desmarest, 1804 (p. 4, the roan antelope) as the type species by monotypy. Both the nomenclators Sherborn (1927) and Neave (1939) had already listed *Hippotragus* from Sundevall (1845) without mentioning Sundevall (1846).

3. In connection with the preparation of the *Official List of Generic Names in Zoology*, published in 1958, Direction 23 (November 1955) was issued to complete the rulings given in Opinions 108 and 109, conserving the generic names *Gazella* Blainville, 1816 and *Hippotragus* Sundevall, 1846 respectively. The Direction mentioned (p. 205) that 'a defect was found in the Ruling given in Opinion 109 (1929, *Smithson. Misc. Coll.*, **73** (6): 16), by which the name *Hippotragus* Sundevall, 1846 (Class Mammalia) had been validated under the Plenary Powers'. This was 'investigated in the Office of the Commission, and on the completion of this inquiry the following paper was submitted to the Commission by the Secretary (Francis Hemming) on 25th March 1955. . .'. In this paper, included within the Direction, Hemming (p. 210) reviewed the history of Opinion 109 (1929), and stated that 'the name *niger* Harris, 1838 (ref. 1838b), as published in the combination *Aigoceros niger* (the oldest available name for the Sable Antelope), should be placed on the Official List of Specific Names'. He noted (p. 211) the comments of Ellerman et al. (1953) and stated 'The Commission, when validating the name *Hippotragus* Sundevall, 1846, for the Cape Blue Buck, omitted to make any express mention of the fact that the generic name was a junior homonym of *Hippotragus* Sundevall, 1845 (*Ofvers. Vetensk.-Akad. Förhandl.*, Stockholm 2: 31), the type species of which, by monotypy, is the Roan Antelope (*Antilope equina* Desmarest, 1804) . . . The Public Notices which were issued at the time of the consideration of the present case cover it fully and under the decision taken in Opinion 109 the earlier homonym *Hippotragus* Sundeval (sic), 1845, is therefore to be deemed to have been suppressed in favour of *Hippotragus* Sundevall, 1846. So suppressed, it should now be placed on the Official Index of Rejected and Invalid Generic Names in Zoology, while the specific name *equina* Desmarest, 1804, as published in the combination *Antilope equina* (the oldest available name for the Roan Antelope), should be placed on the Official List of Specific Names in Zoology'. Hemming's proposal concerning *Hippotragus* Sundevall, 1845 involved only one out of 18 names which the Commission was requested to place on Official Lists or Official Indexes. The composite proposal was placed before the Commission in March 1955 and approved by 22 votes, with no negative votes.

4. Thus for the first time the publication of Sundevall (1845) was presented to the Commission and action was taken on the suppression of the (1845) name *Hippotragus*. I have found no reference in the literature to the 1955 ruling as it applies to *Hippotragus* and it is clearly not widely known. It was not mentioned in the only work I have been able to find that was published after Ellerman et al. (1953) and that also cited both Sundevall (1845) and Sundevall (1846), namely Meester et al. (1986). Ansell (1978), Meester et al. (1986), Ansell & Dowsett (1988) and Grubb et al. (1998) noted that *Hippotragus* Sundevall, 1846 had been placed on the Official List and, together with Haltenorth (1963), Walker (1964), Smithers (1971), Ansell (1972),

Smithers & Lobao Tello (1976), Gentry & Gentry (1978), Smithers & Wilson (1979), Rautenbach (1982), Smithers (1983), Anderson & Knox Jones (1984), Nowak (1991), Honacki et al. (1982) and Grubb (1993), have dated *Hippotragus* from that year.

5. The suppression of *Hippotragus* Sundevall, 1845 took place because the name had been overlooked by the authors who submitted the original 1914 application which resulted in Opinion 109 (1929) (the 'defect' to which Hemming alluded in 1955), and occurred during the period (1913–1958) when generic names conserved under the plenary power and placed on the Official List thereby became nomina conservanda, i.e. they were given protection against all earlier synonyms. Dates and authors of the names *Hippotragus* and *Antilope leucophaea*, the type of the genus, were not given in the 1914 application, though reference must have applied to Sundevall (1846) since in that work *A. leucophaea* is cited whereas there is no mention of this species in Sundevall (1845). The name *A. leucophaea* Pallas, 1766 was placed on the Official List in Direction 22 (November 1955). Unfortunately there was no reference to, or consultation with, the zoological community in relation to the suppression of *Hippotragus* Sundevall, 1845. Further issues arise from the 1955 decision, which were overlooked in Direction 23. It is apparent that the suppression of *Hippotragus* Sundevall, 1845 not only occurred because of oversight but also that it has not stabilised the nomenclature. It would have been preferable if this name had instead been placed on the Official List.

6. One unperceived outcome of Direction 23 (1955) was to render unavailable the family-group name HIPPOTRAGINAE Sundevall, since this was proposed (in the form Hippotragina) by Sundevall (1845, p. 31) but was not mentioned in Sundevall (1846). The publication usually cited for HIPPOTRAGINAE is Brooke in Wallace (1876, p. 223), and the name has been taken to be a senior synonym of ORYGINAE, also of Brooke in Wallace (1876). HIPPOTRAGINAE (or HIPPOTRAGINI) is a widely used name but authorship of such family-group names is not always indicated in the literature when they are cited. The following authors have assigned HIPPOTRAGINAE to Brooke in Wallace (1876): Simpson (1945, and including HIPPOTRAGINI, new rank), Sokolov (1953), Frechkop (1955, as an alternative to 'ORYGINAE G.M. Allen, 1939'), Viret (1961), Gromova (1962), and Grubb (1993, = 1995, third printing). 'HIPPOTRAGINI Simpson, 1945' used by Haltenorth (1963) refers to Brooke in Wallace.

7. There is a third early publication which cited *Hippotragus* and HIPPOTRAGINAE but which was not drawn to the attention of the Commissioners in connection with Opinion 109 and Direction 23, and which has been widely overlooked. The work is that of Retzius & Lovén (1845), a summary in German of Sundevall's (1846) paper. The publication satisfies the criteria of availability for these two names, which are attributed (p. 445) to Sundevall and should be quoted in the form '*Hippotragus* (and HIPPOTRAGINI) Sundevall in Retzius & Lovén, 1845', and it cites by name only *Antilope equina* as included in *Hippotragus*. 'Hippotragina Sundevall, Retzius & Lovén' was mentioned by Simpson (1945) but not used as a valid name; possibly he thought it was unavailable since he cited *Hippotragus* from a later date (Sundevall, 1846). HIPPOTRAGINAE Sundevall in Retzius & Lovén, 1845 has been listed as a valid name in two recent and major checklists by Grubb (1993) and McKenna & Bell (1997).

8. By following Opinion 109 and using '*Hippotragus* Sundevall, 1846', and by employing the prior available family-group name 'HIPOTRAGINAE Sundevall in Retzius & Lovén, 1845', following its citation in Simpson (1945), a nomenclatural problem has been created in the current literature (Grubb, 1993; McKenna & Bell, 1997). The use of both names together is clearly inappropriate since a family-group name cannot predate the genus on which it is presumed to be based.

9. The authorships *Aigoceros niger* Harris, 1838 (July; ref. 1838b) and *Antilope equina* Desmarest, 1804 (cited as '*Antilope equina* Geoff.')

 are in fact not, as had been stated by Hemming in Direction 23, the earliest available for the sable and roan antelopes respectively. Earlier publications are *Aigoceros niger* Harris, 1838 (27 January; ref. 1838a) and *Antilope equina* Étienne Geoffroy Saint-Hilaire, 1803 (see McAllan & Bruce, 1989 and Grubb, 1999). In Case 3022, published in BZN 58: 41–52 (March 2001), I have proposed that É. Geoffroy Saint-Hilaire's (1803) *Catalogue des mammifères du Muséum National d'Histoire Naturelle*, in which (p. 259) the name *Antilope equina* was first published, be placed on the Official List of Works Approved as Available for Zoological Nomenclature.

10. The first publication of *Hippotragus niger*, the date and authorship of *H. equinus*, the date and type species of *Hippotragus*, and the date and authorship of HIPOTRAGINAE have been cited in Opinion 109 and Direction 23 and in the general literature, but every one of these (dates, authorship or type species) has later been disputed. A secure and permanent stabilisation of the nomenclature of hippotragine antelopes at the species, genus and family-group levels would be best achieved by asking the Commission to restore the availability of *Hippotragus* Sundevall, 1845, and hence of HIPOTRAGINAE Sundevall, 1845. *Hippotragus leucophaeus* (Pallas, 1766) and *H. equinus* (É. Geoffroy Saint-Hilaire, 1803) have always been considered to be congeneric, and were treated as conspecific by Haltenorth (1963). There would be advantage in basing *Hippotragus* on the living roan (*H. equinus*), following Sundevall's original (1845) publication, for which there is comparative material and knowledge of its taxonomic status, geographic distribution, ecology, physiology and genetics. The type specimen is a skin numbered DVII in the Muséum National d'Histoire Naturelle, Paris, with Plettenberg Bay, Western Cape, South Africa, considered to be the type locality (see Grubb, 1999, p. 32). There is limited comparative material for the blaauwbok (*H. leucophaeus*), extinct since 1799; authenticated records comprise only single mounted specimens in Vienna, Stockholm, Paris and Leiden, a pair of horns and two skulls (see Mohr, 1967, Rookmaaker, 1992 and Groves & Westwood, 1995). There is very little general information on the species (see Klein, 1974). The mounted specimen in the Nationaal Natuurhistorisch Museum, Leiden (catalogue no. Mammalia 20681) was designated as the lectotype by Husson & Holthuis (1969, p. 153), who restricted the type locality to Swellendam district, Cape Province.

11. The International Commission on Zoological Nomenclature is accordingly asked:

(1) to use its plenary power:

(a) to rescind the suppression of the generic name *Hippotragus* Sundevall, 1845 in Direction 23;

- (b) to delete the entry for *Hippotragus* Sundevall, 1845 from the Official Index of Rejected and Invalid Generic Names in Zoology and to place on the Official List of Generic Names in Zoology the name *Hippotragus* Sundevall, 1845 (gender: masculine), type species by monotypy *Antilope equina* É. Geoffroy Saint-Hilaire, 1803;
- (c) to delete the entry for *Hippotragus* Sundevall, 1846 from the Official List of Generic Names in Zoology;
- (d) to emend the entries on the Official List of Specific Names in Zoology for the following names:
 - (i) *equina*, as published in the binomen *Antilope equina*, to record the authorship and date as É. Geoffroy Saint-Hilaire (1803) and to add an endorsement that it is the specific name of the type species of *Hippotragus* Sundevall, 1845;
 - (ii) *niger* Harris, 1838, as published in the binomen *Aigocerus niger*, to record the date and place of publication as 27 January 1838, *The Athenaeum*, 535: 71;
- (e) to delete from the entry on the Official List of Specific Names in Zoology for *leucophaea* Pallas, 1766, as published in the binomen *Antilope leucophaea*, that it is the type species of *Hippotragus* Sundevall, 1846, and to add an endorsement that it is defined by the lectotype designated by Husson & Holthuis (1969);
- (2) to place on the Official List of Family-Group Names in Zoology the name HIPPOTRAGINAE Sundevall, 1845 (type genus *Hippotragus* Sundevall, 1845).

References

- Anderson, S. & Knox Jones, J. (Eds.). 1984. *Orders and families of recent mammals of the world*. xii, 686 pp. Wiley, New York.
- Ansell, W.F.H. 1972. Artiodactyla, part 15. Pp. 1–84 in Meester, J. & Setzer, H.W. (Eds.), *The mammals of Africa: an identification manual*. Smithsonian Institution Press, Washington D.C.
- Ansell, W.F.H. 1978. *The mammals of Zambia*. 126 pp. The National Parks & Wildlife Service, Chilanga, Zambia.
- Ansell, W.F.H & Dowsett, R.J. 1988. *Mammals of Malawi. An annotated check list and atlas*. 170 pp. The Trendrine Press, Zennor, St Ives.
- Desmarest, E. 1804. Antilope osanne (*Antilope equina* Geoffr.). *Nouveau dictionnaire d'histoire naturelle*, vol. 24, part 1, p. 4. Déterville, Paris.
- Ellerman, J.R., Morrison-Scott, T.C.S. & Hayman, R.W. 1953. *Southern African mammals 1758 to 1951: a reclassification*. 363 pp. British Museum (Natural History), London.
- Frechkop, S. 1955. Ordre des paraxoniens ou artiodactyles. Pp. 501–693 in Grassé, P.-P. (Ed.), *Traité de Zoologie*, vol. 17. 2300 pp. Masson, Paris.
- Gentry, A.W. & Gentry, A. 1978. Fossil Bovidae (Mammalia) of Olduvai Gorge, Tanzania. Part 1. *Bulletin of the British Museum (Natural History)*, Geology Series, 29: 289–446.
- Geoffroy Saint-Hilaire, É. 1803. *Catalogue des mammifères du Muséum National d'Histoire Naturelle*. 272 pp. Paris.
- Gromova, V.I. 1962. Order Artiodactyla. Pp. 337–410 in Gromova, V.I. (Ed.), *Mleko-pitayushskie. Osnovy Paleontologi*, vol. 13. 421 pp. Akademii Nauk SSSR, Moscow.
- Groves, C.P. & Westwood, C.R. 1995. Skulls of the blaauwbok *Hippotragus leucophaeus*. *Zeitschrift für Säugetierkunde*, 60: 314–318.

- Grubb, P.** 1993. Order Artiodactyla. Pp. 377–414 in Wilson, D.E. & Reeder, D.M. (Eds.), *Mammal species of the world. A taxonomic and geographic reference*, Ed. 2. Third printing, with corrections, 1995. xviii, 1206 pp. Smithsonian Institution Press, Washington D.C.
- Grubb, P.** 1999. Types and type localities of ungulates named from southern Africa. *Koedoe*, **42**: 13–45.
- Grubb, P., Jones, T.S., Davies, A.G., Edberg, E., Starin, E.D. & Hill, J.E.** 1998. *Mammals of Ghana, Sierra Leone and The Gambia*. 265 pp. The Trendrine Press, Zennor, St Ives.
- Haltenorth, Th.** 1963. Klassifikation der Säugetiere: Artiodactyla 1(18). *Handbuch der Zoologie*, **8**(32): 1–167.
- Harris, W.C.** 1838a. (27 January). [A communication . . . descriptive of a new antelope]. *The Athenaeum*, **535**: 71.
- Harris, W.C.** 1838b. (July). On a new species of antelope. *Proceedings of the Zoological Society of London*, **1838**: 2.
- Honacki, J.H., Kinman, K.E. & Koepl, J.W.** (Eds.). 1982. *Mammal species of the world*. ix, 694 pp. Allen Press, Lawrence, Kansas.
- Husson, A.M. & Holthuis, L.B.** 1969. On the type of *Antilope leucophaea* Pallas, 1766, preserved in the collection of the Rijksmuseum van Natuurlijke Historie, Leiden. *Zoologische Mededelingen*, **49**: 57–63.
- Klein, R.G.** 1974. On the taxonomic status, distribution and ecology of the blue antelope, *Hippotragus leucophaeus* (Pallas, 1766). *Annals of the South African Museum*, **65**: 99–143.
- McAllan, I.A.W. & Bruce, M.D.** 1989. Some problems in vertebrate nomenclature. I. Mammals. *Bolletino, Museo Regionale de Scienze Naturali*, Torino, **7**: 443–460.
- McKenna, M.C. & Bell, S.K.** 1997. *Classification of mammals above the species level*. xii, 631 pp. Columbia University Press, New York.
- Meester, J.A.J., Rautenbach, I.L., Dippenaar, N.J. & Baker, C.M.** 1986. *Classification of southern African mammals*. 359 pp. Transvaal Museum Monograph. No. 5. Transvaal Museum, Pretoria.
- Mohr, E.** 1967. *Der Blaubock Hippotragus leucophaeus (Pallas, 1766). Eine Dokumentation*. 81 pp. Parey, Hamburg. (Monograph in the *Mammalis Depicta* series).
- Neave, S.A.** 1939. *Nomenclator zoologicus*, vol. 2 (D-L). 1025 pp. The Zoological Society of London, London.
- Nowak, R.M.** 1991. *Walker's mammals of the world*, Ed. 5. 1629 pp. (in 2 vols.). Johns Hopkins University Press, Baltimore & London.
- Pallas, P.S.** 1766. *Miscellanea Zoologica*. xii, 224 pp.
- Rautenbach, I.L.** 1982. *Mammals of the Transvaal*. 211 pp. Ecomonograph No. 1. Ecomonograph, Pretoria.
- Retzius, [A.] & Lovén, [S.N.]**. 1845. Bericht von Retzius und Lovén über Sundevall's Abhandlung, betitelt: Methodische Uebersicht der wiederkäuenden Thiere. *Archiv Skandinavischer Beiträge zur Naturgeschichte*, Greifswald, **1**: 440–446.
- Rookmaaker, L.C.** 1992. Additions and revisions to the list of specimens of the extinct blue antelope (*Hippotragus leucophaeus*). *Annals of the South African Museum*, **102**: 131–141.
- Sherborn, C.D.** 1927. *Index Animalium 1801–1850*, part 12. Pp. 2881–3136. British Museum, London.
- Simpson, G.G.** 1945. The principles of classification and a classification of mammals. *Bulletin of the American Museum of Natural History*, **85**: 1–350.
- Smithers, R.H.N.** 1971. *The mammals of Botswana*. 340 pp. Museum memoir No. 4. Trustees of the National Museums and Monuments, Salisbury, Zimbabwe.
- Smithers, R.H.N.** 1983. *The mammals of the Southern African subregion*. xxii, 736 pp. University of Pretoria, Pretoria .
- Smithers, R.H.N. & Lobao Tello, J.L.P.** 1976. *Check List and atlas of the mammals of Moçambique*. 184 pp. Museum Memoir No. 8, Trustees of the National Museums and Monuments, Salisbury, Zimbabwe.
- Smithers, R.H.N. & Wilson, V.J.** 1979. *Check list and atlas of the mammals of Zimbabwe Rhodesia*. Museum Memoir No. 9, Trustees of the National Museums and Monuments, Salisbury, Zimbabwe, 193 pp.

- Sokolov, I.** 1953. Opyt estestvennoi klassifikatsii polorogikh (Bovidae) [Natural classification of Bovidae]. *Trudy Zoologicheskogo Instituta, Akademiya Nauk SSSR*, **14**: 1–295.
- Sundevall, C.J.** 1845. Öfversigt af däggdjursordningen Pecora. *Öfversigt af Kongl. Vetenskaps-Akademiens Förhandlingar, Andra Argången*, **1845**(2, 3): 26–32.
- Sundevall, C.J.** 1846. Methodisk öfversigt af Idislande djuren, Linné's Pecora. *Kongliga Vetenskaps-Akademiens Handlingar*, **1846**: 121–210.
- Viret, J.** 1961. Artiodactyla. Pp. 887–1084 in Piveteau, J. (Ed.), *Traité de Paléontologie*, vol. 4(1). 1138 pp. Masson, Paris.
- Walker, E.P.** 1964. *Mammals of the world*. 1500 pp. (in 2 vols.). The Johns Hopkins Press, Baltimore.
- Wallace, A.R.** 1876. *The geographical distribution of animals*, vol. 2. viii, 607 pp. Macmillan, London.

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).

Comments on Article 74.7.3 of the Code (requirement for an express statement of the taxonomic purpose of a lectotype designation), including a proposal that it should be revoked

Article 74.7 of the Code reads: 'To be valid, a lectotype designation made after 1999 must . . . [74.7.3] contain an express statement of the taxonomic purpose of the designation'.

There was no requirement for such a statement in the previous (1985) edition of the Code, which prescribed (as does the current edition) that 'each designation . . . must have as its object the definition of the taxon'.

(1) W.J. Pulawski

California Academy of Sciences, San Francisco, California 94118, U.S.A.

As a practicing taxonomist I feel obliged to protest against the Article 74.7.3 that first appeared in the new edition of the Code. In my view, this Article is objectionable and unnecessary for two reasons:

1. It requires a justification of the obvious. It is true that there are some rare cases of very unsatisfactory lectotype designations (e.g., specimens unsuitable for identification purposes are designated when better specimens are present; or a lectotype is selected from a mixed series, changing the established species concept or resulting in some other negative nomenclatural impact). Unfortunately we have no protection mechanism against unqualified work, and the formal statement required by the new Code adds nothing to the quality of lectotype designations. There is no need to justify in words the usual process of typification, the importance of which is clearly stated in Article 61.1. It is also inconsistent to require such a statement for lectotype designations when no similar provision is made for holotype designations.

2. Since every designation of a lectotype has to be individual (Article 74.3), the provision requires multiple repetitions when more than one lectotype is being designated in a paper. For example, I am preparing a large paper on *Tachysphex* wasps in which some 40 lectotypes are designated. Article 74.7.3 forces me to repeat 40 times the formula 'here designated in order to ensure the name's proper and consistent application'. I find this to be ridiculous.

I would strongly recommend that this ill-conceived innovation in the Code be deleted as soon as possible.

(2) Subsequently Dr Pulawski informed the Commission Secretariat that he had circulated his letter to more than 200 zoologists worldwide, and copies of it, with small individual variations, have been received from C. van Achterberg (*Leiden, The Netherlands*), H. Dollfuss (*Mank, Austria*), F. Gusenleitner and J. Gusenleitner (*Linz, Austria*), J. Klimaszewski (*Sainte-Foy, Québec, Canada*), M. Kuhlmann (*Münster, Germany*), J. Leclercq (*Liège, Belgium*), A.S. Menke (*Bisbee, Arizona, U.S.A.*), M. Ohl (*Berlin, Germany*) and M. Schwarz (*Ansfelden, Austria*). Support for Dr Pulawski's letter has also been received from C.L. Bellamy (*Los Angeles, California, U.S.A.*), P. Dessart (*Bruxelles, Belgium*), P.K.L. Ng (*Singapore*), J.S. Noyes (*London, U.K.*) and F. Ronquist (*Uppsala, Sweden*).

(3) D.A. Rider

North Dakota State University, Fargo, North Dakota 58105, U.S.A.

I must respectfully disagree with Dr Pulawski's letter reproduced above. I am currently working on a catalog of the Pentatomidae (Heteroptera) of the world, and I am trying to provide as much information as possible about the type specimens of each species. Dr Pulawski is correct in that the new Article 74.7 will not stop a curator from publishing a paper on the specimens in a museum and designating lectotypes. What it will stop, however, is inadvertent or careless designations. In the past curators frequently labeled one of the original specimens (syntypes) as 'type' or even 'holotype'; what then happened (very commonly, I must add) is that subsequent authors referred to that specimen as 'the type', without checking its true status; under the old Code this constituted a lectotype designation. From what I have seen curatorial selection of 'poor' specimens is much more common than Dr Pulawski suggests. The new Code eliminates such [future] inadvertent and inappropriate lectotype fixations.

I cannot see why Article 74.7.3 should cause objection. Is it really a big problem to make a statement of the taxonomic purpose of a lectotype designation? I have always done this (and I think many/most of us have done so too) and I do not find it cumbersome at all. The new rule simply makes it mandatory.

(4) M.D. Webb

Department of Entomology, The Natural History Museum, Cromwell Road, London SW7 5BD, U.K.

The intention of Article 74.7.3 is evidently to prevent lectotype designations from being made as a matter of curatorial tidying-up. My own view is that in order to follow the 'spirit' of the new Code we should *not* just repeat a favourite statement after designating lectotypes. Rather, we should ask the question: is the identity of this taxon in doubt if we don't designate a lectotype? If it is not, then don't make a designation. In most cases taking the original syntype series as the name-bearing type causes no problem. When there is an over-riding taxonomic reason for designating a lectotype (e.g. the type series is composite) then we should do so, and state that reason. In other words, lectotype designations should be made in response to an existing (rather than hypothetical) problem.

(5) A. Hamilton

Biosystematics Research Institute, Agriculture and Agri-Food Canada, Ottawa, Ontario, K1A 0C6, Canada

I am not worried about changes in the new Code when they are not retroactive, and Article 74.7.3 is not. In general I applaud any attempts to make taxonomic decisions and the reasons for them more 'transparent' (for example, synonymies are anathema if made without explanation and/or without mentioning whether type material was examined).

Reasons *for* designating a lectotype include:-

(a) One (or more), but not all, of the syntypes corresponds to the prevailing usage of the name and there is a real possibility that the type series may consist of more than one taxon. This covers the great majority of cases.

(b) The choice of a form (e.g. a sex or life stage) which is considered identifiable, when the type series includes other specimens which may not distinguish the taxon from related ones.

(c) Selection of a specimen which, unlike some other syntypes, comes from a locality where sibling species are absent.

(d) The supposed type series includes specimens of doubtful authenticity.

(e) Only one specimen actually corresponds to details in the original description.

(f) Original specimens exist (or may exist) in more than one collection, but some are not readily accessible.

(g) An original specimen is clearly labeled (e.g. with details of locality and date) but others are not.

(h) One (or a minority) of the syntypes are anomalous (e.g. if the type series consists of many females but only one male, possibly not conspecific, then a female lectotype would be appropriate).

There are probably other situations where lectotype designation is desirable, but these are ones which come readily to mind.

Reasons for *not* designating a lectotype include situations where the only known syntypes do not permit clear identification of the taxon, or they are not in accord with the current concept of the taxon (i.e. the prevailing usage of its name); in such instances a neotype may be appropriate despite the existence of original specimens (see Articles 75.5 and 75.6).

(6) Following the original letter from Dr Pulawski (see comments (1) and (2) above), he and Dr I.M. Kerzhner (*Zoological Institute, Russian Academy of Sciences, St Petersburg 199034, Russia*) sent to the Commission Secretariat on 25 February 2001 a formal request for the revocation of Article 74.7.3, i.e. its retrospective deletion from the Code. They also copied this request to other zoologists.

In addition to repeating the points in Dr Pulawski's original letter, they noted that the wording of Article 74.7.3 does not disqualify statements such as 'designated to increase stability of nomenclature'. Based on an electronic search of *Zoological Record*, they found an increasing number of lectotype designations in recent years and that the great majority of these did not include individual statements of taxonomic purpose. By extrapolation they estimated that in the year 2000 there were probably some 1600 designations in 600 publications which were not in accord with Article 74.7.3.

Drs Pulawski and Kerzhner said that 'a statement of the taxonomic purpose of lectotype designations was never required or recommended in previous editions of the Code, a need for it was never widely discussed, and it seldom occurred in pre-2000 publications. It is not surprising that most authors, reviewers and editors overlooked the new requirement. A contributing factor is that many academic centers, let alone countries, do not have a copy of the current Code'.

Drs Pulawski and Kerzhner concluded: 'Article 74.7.3 does not contain anything positive for nomenclature and is destabilizing. In our opinion, the current situation must be urgently corrected, and elimination of the Article is the only reasonable solution (this change would affect no other part of the Code, including the Recommendations). If the Commission agrees that the deletion is not a major change, under Article 78.3.2 it could issue a Declaration as a provisional amendment

to the Code. This would eliminate the current chaos and save zoologists and the Commission unnecessary work'. They proposed that the Commission should issue such a Declaration.

(7) Support for the proposal from Drs Pulawski and Kerzhner has been received from G.C.D. Griffiths (*Edmonton, Canada*), U. Kallweit (*Dresden, Germany*), A.L. Ozerov (*Moscow, Russia*), A.C. Pont (*Goring-on-Thames, U.K.*) and K. Rognes (*Stavanger, Norway*).

(8) O. Kraus

Zoologisches Institut und Museum, Universität Hamburg, Martin-Luther-King Platz 3, 20146 Hamburg, Germany

Stability of nomenclature is one of the basic aims of the Code, and this is of necessity linked to stability of the Code itself. The present edition should remain the basis for many years. Its provisions, specifically including Article 74.7.3, are the result of years of open discussions. Perhaps that Article is not truly fundamental, or it could be improved in its wording, but I am very strongly against its deletion. Amendments to the Code, if any, should be limited to real essentials, and changes which are said to be 'minor' should await the development of some future edition.

(9) A.P. Rasnitsyn

Paleontological Institute, Russian Academy of Sciences, 117868 Moscow, Russia

I wish to join the protest against Article 74.7.3. I have designated tens of lectotypes in a single publication, and it would be absurd if I had to explain the self-evident necessity to designate lectotypes of old and often confused species-group names under each individual type or species. In designating lectotypes a worker clears the field of taxonomy for future generations of colleagues in a comparatively safe way. I firmly believe that lectotype designations should be considered an important part of a taxonomist's professional activity, and particularly so for the everyday curatorial responsibility for the animal groups of which he or she has intimate knowledge. In my opinion Article 74.7.3 weakens the value of the type principle. It suggests that lectotype designation is appropriate only in cases of direct necessity (i.e. in cases of doubtful application of the name). This might be taken as a reason to consider *all* type designations as redundant unless there is a definite ambiguity in name application.

(10) F.C. Thompson

Systematic Entomology Laboratory, USDA, clo U.S. National Museum, Washington, D.C. 20560, U.S.A.

Contrary to Drs Pulawski and Kerzhner (see (5) above), what became Article 74.7.3 was widely publicized during the development of the Code. For example, Article 74a of the Discussion Draft of which more than 1000 copies were issued in May 1995 stated 'a lectotype designation made after 19.. must give the author's reasons for believing that the designation is necessary', and this was flagged as a significant new proposal on p. 3 of the accompanying Explanatory Notes, in the Bulletin (BZN 52: 123, June 1995), and elsewhere. In the ensuing discussions (which involved more than 500 zoologists at meetings and in written and electronic correspondence) there was very little expressed opposition to this, although Dr

Kerzhner was one who did object. The remark by Drs Pulawski and Kerzhner that 'many academic centers, let alone countries, do not have a copy of the current Code' could be used as an argument against *all* new provisions. For example, they overlook Article 16, which requires that the intent to establish new nominal taxa and their typification must both be explicitly stated.

The few extra words required to satisfy Article 74.7.3 may be a 'statement of the obvious' but are no great hardship on any good worker.

(11) W.D.L. Ride

Department of Geology, The Australian National University, P.O. Box 4, Canberra, ACT 2600, Australia

The proposal by Pulawski and Kerzhner to delete Article 74.7.3 should be rejected. It would, if acceded to, result in the Commission taking an action that would both be destabilizing to nomenclature and be a cause of confusion as to the intentions of the Code to act in the interests of taxonomy. Its removal would be a major change to the Code which was adopted and approved by the Commission and the International Union of Biological Sciences following extensive discussion by the wider zoological community.

The importance of the role of lectotypification in classification cannot be over-emphasized. When they become necessary, lectotype selection and designation must be taxonomically meaningful, careful and explicit. Moreover the action is taken following a period of use of a name often established long before. The designator must take that usage into account when selecting a lectotype, and must then be satisfied that an important taxonomic purpose and nomenclatural stability are served by reducing the objective basis of the name (its name-bearing type) to the taxonomically most meaningful specimen. Careless or taxonomically unneeded lectotypification may prevent subsequent clarification should that become necessary, and so may be destructive of stability and universality.

For 40 years, since 1961, Article 74 of the Code has contained the provision that each lectotype designation 'must be made specifically for an individual species [or subspecies] and must have as its object the definition of that species'. The intention of the provision (and of the taxonomists who sought its inclusion in the Code) could not be more plain. The introduction of Article 74.7.3 in the current edition of the Code, requiring designators to provide 'an express statement of the taxonomic purpose of the designation', followed wide and prolonged consultations and is one expression of a progressive change throughout the rules eliminating the need for revisers to interpret subjectively the intentions of their predecessors. By requiring a designator to expressly state the taxonomic purpose of the designation it removes from the revisor the requirement to ascertain by inference alone that the purpose of the designation had 'as its object the definition of the taxon'. The definition of 'taxonomic' in the Glossary restricts the purpose to the better classification of organisms and eliminates routine curatorial 'housekeeping' or general nomenclatural 'tidiness' as acceptable reasons for lectotype designations.

The solution to the difficulties expressed by Pulawski and Kerzhner is already in the Code, and there is certainly no case that the matter is so urgent that the Commission should act in any other way than to consult widely with the international community as is required by Article 78.3.1 of the Code and Article 16 of its Constitution. The

suggested deletion of Article 74.7.3 does not 'merely clarify a provision of the Code' (see Article 78.3.2) and the Commission does not have the power to amend the Code without consultation, even if its members were minded to do so.

A lectotype designation published after 1999 without a statement of the taxonomic purpose is invalid, but a subsequent author should nevertheless act consistently with that action: Recommendation 74A should be followed, and a different specimen should not be designated unless, in the author's opinion, the invalid 'designation' is contrary to stability and is a cause of confusion. If a lectotype is judged to be taxonomically necessary then the invalidly designated specimen should be selected.

Conclusion and summary

Contrary to the view expressed above by Drs Pulawski and Kerzhner that 'Article 74.7.3 does not contain anything positive for nomenclature and is destabilizing', the Article is integral and it is important to the way in which nomenclature serves taxonomy. Article 74 does not only provide, by a nomenclatural rule, a convenient means of reducing a suite of objects (syntypes) from many to one (a lectotype) in the interests of objectivity. Lectotype selection is also a process whereby an original author's intention to base a name on a suite rather than on a single specimen (a holotype) may be amended; this must be done only to serve developing knowledge and not for any other purpose.

The present Article is a reflection of the long-held and clearly expressed wish of taxonomists that the Code should include provisions which promote good practice, that which takes proper account of taxonomic and nomenclatural actions. The Commission has responded to this wish between 1961 and 1999 by a sequence of improved wordings of Articles 74.3 and 74.7.3, the Glossary definition of 'taxonomic', and Recommendation 74A. I have no doubt that it is possible to further improve the words of Articles and Recommendations to express better the spirit of their purpose, but whatever words are adopted it will still be possible to circumvent their intention (for example by writing such scientifically meaningless formulae as 'designated to increase stability').

To remove Article 74.7.3 from the Code would send a signal to international biology that, rather than progressively making the practice of nomenclature more integral with taxonomy and more meaningful, the Commission is prepared to encourage practices which are less than careful (or, as has happened on a few occasions, actively irresponsible). I hope that Drs Pulawski and Kerzhner will not wish to pursue their proposal, because uncertainty as to the eventual outcome would inevitably continue for a long time and this would do nothing for stability or confidence in the Code.

(12) P.K. Tubbs

c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K.

This comment is a personal one — it is not made as the Commission's Executive Secretary or as a member of the former Editorial Committee of the fourth edition of the Code.

It is not surprising that, as Drs Pulawski and Kerzhner have said (see (6) above), many lectotype designations are being made without an express statement of their purpose and are therefore in breach of Article 74.7.3. While many designations are made in response to a consciously perceived need to solve an actual problem, such as

described by Dr Hamilton in comment (5), there is also an assumption, evidently widely held, that lectotype designations should be a routine part of a revision of a taxonomic field even if no nomenclatural problems are immediately evident or foreseen (see Prof Rasnitsyn's comment (9)). Naturally such designations usually do have the definition of the taxon as their underlying intent, but they do not necessarily have a reason which could be summarised in a brief and meaningful 'express statement of taxonomic purpose'. Occasionally routine or curatorial designations have been made even though the designator was aware that the action would disturb prevailing nomenclature, and a subsequent author has had to make an application to the Commission to set aside the action (for example 'routine' but deliberate lectotype designations threatened to completely upset the names of the four most common bumble bees of Europe, and this was rectified in 1996 by Opinion 1828).

The statement of purpose required by Article 74.7.3 has been denounced as a 'statement of the obvious'. But, as mentioned above, often the reason for a lectotype designation is not obvious at all. When there is a perceived reason, then it is surely very easy to state it. Lectotype designations must be made individually for each species, not collectively. However, if a number of such individual designations were accompanied by an opening statement along the lines of 'Because in each of the following species the type series is composite we designate below lectotypes which are in accord with the established usage of the names', or 'Because the female syntypes do not distinguish between the following species we designate below male lectotypes in each case', then I would regard that as satisfying Article 74.7.3. In other words, I do not believe that the 'Because' or purpose statement (as distinct from the specimen selection and designation) has to be ritually repeated time after time — to require such multiple incantations would be unreasonable, and the Code proceeds on the (unstated) principle that reasonableness prevails!

As mentioned above by Dr Thompson in comment (10), the proposed Article 74.7.3 was widely publicised and considered in the years leading up to the current Code and very few adverse remarks were made; following the Code's publication in English and French in 1999, and subsequently in other languages, no objection was raised until Dr Pulawski's circular of November 2000. However, the proposal by Drs Pulawski and Kerzhner that the provision should be revoked needs to be considered on its merits.

I do not support the proposition. It is of course regrettable that many (perhaps even a majority) of recent designations fail, presumably through understandable oversight, to meet the requirement of Article 74.7.3 and are therefore invalid. However, under the Code these purported designations place a responsibility on subsequent authors who do see a positive need for a lectotype. Recommendation 74A, mentioned above by Prof Ride, states that 'In designating a lectotype, in order to preserve stability of nomenclature authors should act consistently with, and in any event give great weight to, previously accepted taxonomic restrictions of the application of the name'. It follows that invalid designations are not necessarily 'wasted': they have enduring influence, and there is no need for them to be repeated in valid form or to be the subject of Commission rulings. A future worker is able to override them by a different but valid designation, but must do so only if there is very good reason for setting aside the earlier restriction.

The belief that lectotypes should be designated as a matter of 'routine' revisory work is surely mistaken. Many well known species do not have any existing type material, and yet their names are of undoubted application; in other instances the taxon is better delineated by the original author's type series than by a subsequent worker's arbitrary, if well meaning, restriction to a single specimen (and, for it to have any effect, other zoologists have to be aware of that restriction).

I appreciate and share the disquiet about the fact that Article 74.7.3 is, up to the present, as frequently contravened as it is followed. However, the correspondence started by Dr Pulawski may serve the very useful purpose of bringing the new provision, which I believe has much merit, to wider attention and one may hope that the requirement will be increasingly complied with. Present ignorance of the Article is not an adequate reason to delete it; if this were so many other provisions would be at risk, and stability of the Code is of great importance.

Comment on the proposed conservation of *Hydrobia* Hartmann, 1821 (Mollusca, Gastropoda) and *Cyclostoma acutum* Draparnaud, 1805 (currently *Hydrobia acuta*) by the replacement of the lectotype of *H. acuta* with a neotype; proposed designation of *Turbo ventrosus* Montagu, 1803 as the type species of *Ventrosia* Radoman, 1977; and proposed emendation of spelling of HYDROBIINA Mulsant, 1844 (Insecta, Coleoptera) to HYDROBIUSINA, so removing the homonymy with HYDROBIIDAE Troschel, 1857 (Mollusca)

(Case 3087; see BZN 55: 139–145; 56: 56–63, 143–148, 187–190, 268–270; 58: 56–58)

Edmund Gittenberger

*Nationaal Natuurhistorisch Museum, P.O. Box 9517, 2300 RA Leiden,
The Netherlands*

Much of what has been written in the *Bulletin* on this case relates to systematics, not nomenclature. The question at issue is a simple one: should a valid lectotype designation be accepted if there is disagreement on the outcome among systematists for a variety of reasons? In other words, should Boeter's (1984) lectotype designation for *Hydrobia acuta* (Draparnaud, 1805) be allowed to stand, or should it be replaced by a neotype as proposed by Giusti et al. in their application?

In my view the Code serves as the tool to solve nomenclatural problems such as this. In this case the alternatives are not stability versus instability, but they divide systematists into two camps. Systematical considerations, forthcoming publications (demonstrating clearly that the concepts of various taxa have to be changed anyway) and the psychology of authors have no place here.

In essence the case relates to three questions:

- (a) Is the existing lectotype a former syntype?
- (b) Has the lectotype been validly designated?
- (c) Can the lectotype be identified without reasonable doubt?

There are clear affirmative answers to all three questions, agreed by both camps of systematists. I am in favour of accepting the existing lectotype. A neotype (suggesting that all the syntypes cannot be identified) would not bring the current confusion to an end. Only good taxonomic research will do this.

There is no reason to consider the type locality of *Hydrobia acuta* as an additional problem. Wilke et al. (BZN 56: 188) state somewhat inconsistently that they have studied topotypic material, while referring (p. 190) to 'missing locality information' and note that 'the type locality of *H. acuta* may be the Étang du Prévost near Palavas-les-Flots . . . but it could be elsewhere in France'. Even this could be incorrect; Draparnaud described *Cylindrus obtusus* in the same (1805) work but it is certainly endemic to Austria.

This comment is fully supported by Dr H.D. Boeters and Dr G. Falkner.

Comments on the proposed conservation of *Trichia* Hartmann, 1840 (Mollusca, Gastropoda) and proposed emendation of spelling of TRICHIINAE Ložek, 1956 (Mollusca) to TRICHIAINAE, so removing the homonymy with TRICHIIDAE Fleming, 1821 (Insecta, Coleoptera)

(Case 2926; see BZN 57: 17–23, 109–110, 166–167, 223–227; 58: 53–56)

(1) Philippe Bouchet and Gerhard Falkner

Muséum national d'Histoire naturelle, 55 rue Buffon, 75005 Paris, France

Gittenberger has proposed that the name *Trichia* Hartmann, 1840 be conserved by suppressing the names *Trochulus* von Alten, 1812 (Mollusca) and *Trichia* de Haan, 1839 (Crustacea), and by ruling that it is not rendered invalid by the existence of *Trichia* von Haller, 1768 in Myxomycetes.

Rosenberg (BZN 57: 225–227) has researched cases of homonymy between genus-group names of animals and those of Myxomycetes and advocated that for consistency *Trichia* Hartmann, 1840 be treated as a junior homonym of *Trichia* Hoffman, 1790 (the first author to make the name available under the zoological Code). We sympathize with this view because nomenclature becomes impenetrable when *Hemitrichia* Möllendorff, 1888 is regarded as invalid because of homonymy in the Myxomycetes, and *Trichia* Hartmann, 1840 is not. Further, we want to point out that *Trochulus* should be dated from Schröter (1788).

The name *Trochulus* was established by Chemnitz (1786) in a work placed on the Official Index by Direction 1. *Trochulus* Chemnitz, 1786 is thus not available. The application has stated (para. 5) that the name is available under Article 11.6.1 of the Code from von Alten (1812), who cited *Trochulus hispidus* in the synonymy of *Helix hispida* Linnaeus, 1758 and referred to Chemnitz. Although the work by Chemnitz has been rejected as non-binominal, we regard the name *Trochulus* as first available from Schröter (1788, p. 107), who published the binomen *Trochulus hispidus* in an index to Chemnitz's work. The index was published independently from Chemnitz's *Systematisches Conchylien-Cabinet*, and it satisfies the conditions of Article 11.4.3. A number of names in current use are currently dated to Schröter (1788) (for example, *Venus foliaceolamellosa*, now *Circomphalus foliaceolamellosus*). *Trochulus* Schröter, 1788 is available under Article 12.2.2 with the type species, by monotypy, *Helix hispida* Linnaeus 1758.

Additional reference

Schröter, J. S. 1788. *Vollständiges alphabetisches Namen-Register über alle zehn Bände des von dem seel. Herrn D. Martini in Berlin angefangenen, und vom Herrn Pastor Chemnitz in*

Kopenhagen fortgesetzten und vollendeten systematischen Conchylien-Cabinets. 124 pp. Raspe, Nürnberg.

(2) F.-T. Krell

Department of Entomology, The Natural History Museum, Cromwell Road, London SW7 5BD, U.K.

In addition to my comment published in BZN 58: 54–56 (March 2001), I should like to illustrate the widespread and overwhelming usage of the family-group name TRICHIINAE Fleming, 1821 in Coleoptera (based on *Trichius* Fabricius, 1775). My current comment is in response to Dr D. Kadolsky, who has recommended (BZN 58: 53) the alteration of this name to TRICHIUSIDAE to overcome the homonymy with TRICHIIDAE Fries, 1821 in Myxomycetes (based on *Trichia* von Haller, 1768). Without doubt, this new spelling would cause confusion since the name TRICHIINAE Fleming (OR TRICHIIDAE OR TRICHIINI) is well-known and used frequently all over the world. A search of the literature cited in *Zoological Record* on CD-ROM 1978–2000 gave 52 references for TRICHIINAE (TRICHIINI OR TRICHIIDAE), 46 of them referring to the beetle group, one to Mollusca, two to Crustacea and three to slime moulds. None of the three slime mould publications used the spelling TRICHIIDAE, but instead used Trichiaceae (i.e. they followed botanical nomenclature). As far as I know, the spelling TRICHIIDAE has been used as a slime mould name only by *Zoological Record* and by Olive (1975, p. 112) during the last 30 years.

I have given the Commission Secretariat a list of 54 works, independent of the evidence provided by *Zoological Record*, published within the past 50 years which use the beetle name TRICHIINAE. These include comprehensive works on Coleoptera, standard monographic works on regional or supraregional faunas from all over the world, catalogues, morphological and phylogenetical studies, handbooks for identification and semi-popular guides.

It is evident that TRICHIINAE is in very wide usage in Coleoptera, and to change it because the name Trichiaceae is in use for slime moulds would be destabilizing and totally inappropriate.

Additional reference

Olive, L.S. 1975. *The Mycetozoans*. x, 293 pp. Academic Press, New York.

Comment on the proposed conservation of *Turbinella nassatula* Lamarck, 1822 as the type species of *Peristernia* Mörch, 1852 (Mollusca, Gastropoda)
(Case 3133; see BZN 57: 81–83)

William G. Lyons

4227 Porpoise Drive SE, St. Petersburg, Florida 33705–4328, U.S.A.

Richard E. Petit

P.O. Box 30, North Myrtle Beach, South Carolina 29582, U.S.A.

We agree with Snyder that replacing *Clivipollia* with *Peristernia* in BUCCINIDAE and replacing *Peristernia* with another name in FASCIOLARIIDAE would create difficulty

and confusion and should be avoided. To the problems that Snyder mentioned, we add that PERISTERNIINAE Tryon, 1881, the much-used name of one of the three principal subfamilies of FASCIOLARIIDAE, would also have to be replaced.

The first two species listed in *Peristernia* by Mörch (1852) were ‘*crenulata* Reeve’ (with synonym ‘*T. craticulata* Wag.’) and ‘*nassatula* Lamarck’. These species and the synonym have each been designated as the type species of *Peristernia*. We discuss here two such designations by Stimpson (1865) and by von Martens (1868) prior to the earliest designation (by Cossmann, 1889) mentioned by Snyder in his application.

Stimpson (1865, p. 60) designated a type species for *Peristernia* as follows: ‘Type *Turbinella craticulata* Schubert & Wagner; Kiener pl. ix, f. 2’. Mörch (1852), when erecting *Peristernia*, had mentioned ‘*T. craticulata* Wag.’ so that species was eligible. However, Stimpson cited as its figure that of *Turbinella crenulata* Kiener, a species not included in *Peristernia* by Mörch. Kiener (1841) had described *Turbinella crenulata* and cited for it his pl. 9, fig. 2. The legend for fig. 2 on plate 9 is ‘*Turbinella craticulata* Schubert’, but Kiener (1841, p. 50) changed that name to *crenulata* in his errata, and the latter name appeared in his figure legend. The species that Kiener figured as ‘*craticulata* Schubert’ and corrected to ‘*crenulata* Kiener’ is not the species that Reeve figured as ‘*crenulata* Kiener’ and Mörch called ‘*crenulata* Reeve’, as Snyder (para. 3 of his application) has pointed out. The species called *crenulata* by Reeve is the ‘*Turbinella craticulata* Lamarck [b] var.’ of Schubert & Wagner (1829), later named *Turbinella wagneri* by Anton (1838, p. 71). The true identity of Kiener’s *crenulata* is uncertain.

Thus Stimpson’s reference to ‘*Turbinella craticulata* Schubert and Wagner’ may be construed as a designation made in an ambiguous manner (Article 67.5.3 of the Code), because Stimpson did not cite the ‘variety b’ notation or a figure by Schubert & Wagner (1829). A strict reading might conclude that Stimpson referred to ‘*Turbinella craticulata* Lamarck’ of Schubert & Wagner [now *Latirus craticulatus* (Gmelin, 1791), FASCIOLARIIDAE], not to their variety b [now *Clivipollia wagneri* (Anton, 1838), BUCCINIDAE]. Stimpson’s designation was also incorrect because the figure he cited was that of Kiener [i.e. ‘*Turbinella craticulata* Schubert’, sensu Kiener (1840, pl. 9, fig. 2), = *crenulata* Kiener, 1841], whereas Mörch’s citation of *crenulata* was to Reeve’s name and, presumably, to his figure, which was of the species now called *Clivipollia wagneri*.

Ambiguity about relationships among the names ‘*T. craticulata* Schubert and Wagner’, *T. crenulata* Kiener, and *T. crenulata* Reeve has led to other confusion. For example, Thiele (1931, p. 741) mistakenly reported that Cossmann (1889) had designated *Turbinella crenulata* Kiener as the type species of *Peristernia*. Melvill (1891) treated *crenulata* Kiener as a synonym of *Peristernia striata* (Gray, 1839); *crenulata* Reeve as a synonym of *Peristernia iniuensis* Melvill, 1891; *craticulata* ‘Wagner’ as a synonym of *Peristernia wagneri* (Anton, 1838); and *craticulata* ‘Schubert’ as a synonym of *Peristernia chlorostoma* (Sowerby, 1825). The last two ‘synonyms’ are identical; each traces to the unacknowledged *Turbinella craticulata* Lamarck ‘variety b’ of Schubert & Wagner (1825).

In contrast to *crenulata*, there is no confusion associated with the name *nassatula* Lamarck, 1822. In contesting the identity of a radula assigned to *Peristernia* sp., von Martens (1868, p. 530) referred to ‘*Peristernia nassatula*, the type of the genus’. This unambiguous designation of a type species for *Peristernia* was acknowledged by

Iredale & McMichael (1962, p. 68), and we believe that its fixation as the type designation, as proposed (but citing Cossmann, 1889) in Snyder's application, will contribute greatly to nomenclatural stability.

Since Troschel (1868) demonstrated that the radular morphology of *Peristernia nassatula* is in general agreement with those of *Fasciolaria*, *Latirus* and *Leucozonia*, most classification actions involving species of *Peristernia* have aimed toward distinguishing the group as a genus of FASCIOLARIIDAE. The genus now consists of a core group of well-understood species, characterized by *Peristernia nassatula* and united by similar radular morphologies, shell morphologies, and habitat requirements. A few additional species are still included in *Peristernia* because enough is not yet known about them to retain them or move them elsewhere. Nevertheless, the direction of progress has always been toward refining the group as a genus of FASCIOLARIIDAE, and the literature is rich in references to that group, both in taxonomical and ecological contexts. To designate any candidate other than *Turbinella nassatula* Lamarck, 1822 as the type species of *Peristernia* would change that direction and bring much confusion to the scientific literature.

We therefore request that the type designation of *Peristernia* be fixed as that by von Martens (1868) of *Turbinella nassatula* Lamarck, 1822, and that all prior designations be set aside. This can be accomplished simply by replacing 'by Melvill (1891)' with 'by von Martens (1868)' in parts (1) and (2) of Snyder's proposal.

Additional references

- Iredale, T. & McMichael, D.F.** 1962. A reference list of the marine Mollusca of New South Wales. *Memoirs of the Australian Museum*, **11**: 1–109.
- Martens, E. von.** 1868. Mollusca. *Zoological Record*, **4**[1867]: 485–602.
- Schubert, G.H. & Wagner, J.A.** 1829. *Neues systematisches conchylien-Cabinet*, vol. 12. Nürnberg.
- Stimpson, W.** 1865. On certain genera and families of zoophagous gasteropods. *American Journal of Conchology*, **1**: 55–64.
- Thiele, J.** 1931. Pp. 377–788 in: *Handbuch der systematischen Weichtierkunde*, Teil 2: Gastropoda: Opisthobranchia and Pulmonata; Additions; Index for Teil. 1, 2. Fischer, Jena.
- Troschel, F.H.** 1868. Pp. 49–96 in: *Das Gebiss der Schnecken zur Begründung einer natürlichen Classification*, vol. 2, part 2. Berlin.

OPINION 1971

***Leucocytozoon* (Protista, Haemosporida): Berestneff (1904) adopted as the author and date, and *Leukocytozoen danilewskyi* Ziemann, 1898 adopted as the type species**

Keywords. Nomenclature; taxonomy; Protista; Haemosporida; blood parasites; *Leucocytozoon*; *Leucocytozoon danilewskyi*.

Ruling

- (1) Under the plenary power the name *Leukocytozoen* Ziemann, 1898 is hereby suppressed for the purposes of the Principle of Priority but not for those of the Principle of Homonymy.
- (2) The name *Leucocytozoon* Berestneff, 1904 (gender: neuter), type species by monotypy *Leukocytozoen danilewskyi* Ziemann, 1898, is hereby placed on the Official List of Generic Names in Zoology.
- (3) The name *danilewskyi* Ziemann, 1898, as published in the binomen *Leukocytozoen danilewskyi* (specific name of the type species of *Leucocytozoon* Berestneff, 1904), is hereby placed on the Official List of Specific Names in Zoology.
- (4) The name *Leukocytozoen* Ziemann, 1898, as suppressed in (1) above, is hereby placed on the Official Index of Rejected and Invalid Generic Names in Zoology.

History of Case 3089

An application to confirm the authorship and date of the generic name *Leucocytozoon* as Berestneff (1904), with the type species by monotypy as *Leukocytozoen danilewskyi* Ziemann, 1898, was received from Dr Gediminas Valkiūnas (*Institute of Ecology, Vilnius, Lithuania*) on 13 March 1998. After correspondence the case was published in BZN 56: 168–170 (September 1999). Notice of the case was sent to appropriate journals.

Comments in support of the application from Dr Roger W. Crosskey (*The Natural History Museum, London, U.K.*), Prof M.A. Anwar (*University of Oxford, Oxford, U.K.*) and Dr Tatjana A. Iezhova (*Institute of Ecology, Vilnius, Lithuania*) were published in BZN 57: 39–42 (March 2000). A further comment in support from Dr John R. Baker (*Cambridge, U.K.*) was published in 57: 108 (June 2000).

An opposing comment from Dr M.A. Pierce (*International Reference Centre for Avian Haematozoa, Wokingham, Berkshire, U.K.*) was published in BZN 57: 39–41 (March 2000), with a further comment in BZN 57: 108 (June 2000). Dr Pierce would have preferred to attribute authorship and date of the name *Leucocytozoon* to Sambon (1908), and to adopt *Haemamoeba ziemanni* Laveran, 1902 as the type species. A reply by the author of the application, published in BZN 57: 108–109, maintained the original proposals.

The name *danilewskyi* Ziemann, 1898 is in latinised form, even though the text of the work is in German, indicating that it was intended as a scientific name; it was

made available from Ziemann's (1898) illustrations under Article 12.2.7 of the Code. Under Article 11.9.3.1 the purported generic name '*Leukocytozoen*' with which the species name was combined need not be valid or even available (para. 1 of the application). The application proposed the suppression of *Leukocytozoen* in order to put its status beyond dispute.

A recent comment from Dr John O. Corliss (*Bala Cynwyd, Pennsylvania, U.S.A.*) was noted on the voting paper: 'As a protistologist I wish to add my support to the proposals submitted in the carefully composed application by Gediminas Valkiūnas. I have reviewed the related literature (which extends considerably beyond the entirely adequate list given in the application) and have come to the conclusion that the interests of workers on haemosporidian parasites will be best served by the Commission's approval of the case.

While I am convinced that Dr Valkiūnas is accurate in his nomenclatural interpretations, based on priority, I am equally pleased that his conclusions support the long-standing usage of names. Although various members of the parasitological community have been uncertain for many years on the best solution to 'the *Leukocytozoon* problem', respected leaders in the field (including the esteemed and highly perceptive malarial authority, the late Prof P.C.C. Garnham) have often adopted — as is evident by perusal of the overall vast literature involved — the generic and/or specific names and authorships proposed in the application.

Favorable action by the Commission will lay to rest this vexatious nomenclatural matter'.

A further recent note from Drs E. Bychkova and A. Babushnikova (*Institute of Zoology, Academy of Sciences of Belarus, Minsk, Belarus*) recorded: 'We have faced the problem of the name, authorship and date for *Leukocytozoon* in our research and fully support the application'.

Decision of the Commission

On 1 December 2000 the members of the Commission were invited to vote on the proposals published in BZN 56: 169. At the close of the voting period on 1 March 2001 the votes were as follows:

Affirmative votes — 19: Bock, Bouchet, Brothers, Calder, Eschmeyer, Kerzhner, Kraus, Lamas, Macpherson, Mahnert, Minelli, Ng, Nielsen, Papp, Patterson, Rosenberg, Ride, Song, Štys

Negative votes — 3: Alonso-Zarazaga, Cogger and Martins de Souza.

No votes were received from Dupuis and Mawatari.

Voting for, Bouchet commented: 'I am not entirely convinced that Dr Valkiūnas's arguments are technically correct but the solution offered is pragmatic and favours stability'. Patterson commented: 'I have noted the comments of Dr Pierce and I have some sympathy for them. However, I believe that there is an overwhelming consensus for the proposed resolution and thus stability'. Voting against, Alonso-Zarazaga commented: 'I vote against proposals (1), (2) and (4) of para. 7 of the application, while I agree with (3). I feel that the author should have considered the merits of treating the name *Leukocytozoen* Ziemann, 1898 as an incorrect original spelling, which was corrected by Berestneff (1904) to the present spelling *Leukocytozoon*. The author could then have proposed that *Leukocytozoon* be made available from the earlier authorship of Ziemann (1898), with *L. danilewskyi* Ziemann, 1898 as the type

species by monotypy'. Cogger commented: 'The Commission could have been asked to rule simply that the name *Leucocytozoon* Berestneff, 1904 is a justified emendation of *Leukocytozoen* Ziemann, 1898. This would have achieved the proposed nomenclatural outcome and type species, eliminating uncertainty. The authorship (Ziemann, 1898) would have differed from that proposed but there has been no consistency of cited authorship in the literature'.

Original references

The following are the original references to the names placed on Official Lists and an Official Index by the ruling given in the present Opinion:

- danilewskyi*, *Leukocytozoen*, Ziemann, 1898, *Ueber Malaria- und andere Blutparasiten nebst Anhang. Eine wirksame Methode der Chromatin- und Blutfärbung*, p. 128, pl. 3, figs. 29–33.
- Leucocytozoon* Berestneff, 1904, *Archiv für Protistenkunde*, 3: 376.
- Leukocytozoen* Ziemann, 1898, *Ueber Malaria- und andere Blutparasiten nebst Anhang. Eine wirksame Methode der Chromatin- und Blutfärbung*, p. 128, pl. 3, figs. 29–33.

OPINION 1972

Strongylus tetracanthus* Mehlis, 1831 (currently *Cyathostomum tetracanthum*) and *C. catinatum* Looss, 1900 (Nematoda): conserved by the designation of a neotype for *C. tetracanthum

Keywords. Nomenclature; taxonomy; Nematoda; STRONGYLOIDEA; *Cyathostomum*; *Cyathostomum tetracanthum*; *Cyathostomum aegyptiacum*; *Cyathostomum catinatum*; nematodes; strongylid worms; cyathostomes; horse parasites.

Ruling

- (1) Under the plenary power all previous fixations of type specimens for the nominal species *Strongylus tetracanthus* Mehlis, 1831 are hereby set aside and the specimen no. 087757.00 in the U.S. National Parasite Collection, Beltsville, Maryland, collected by A. Looss in 1899, is designated as the neotype.
- (2) The name *Cyathostomum* Molin, 1861 (gender: neuter), type species by monotypy *Strongylus tetracanthus* Mehlis, 1831, is hereby placed on the Official List of Generic Names in Zoology.
- (3) The following names are hereby placed on the Official List of Specific Names in Zoology:
 - (a) *tetracanthus* Mehlis, 1831, as published in the binomen *Strongylus tetracanthus* and as defined by the neotype designated in (1) above (specific name of the type species of *Cyathostomum* Molin, 1861);
 - (b) *catinatum* Looss, 1900, as published in the binomen *Cyathostomum catinatum*.
- (4) The following names are hereby placed on the Official Index of Rejected and Invalid Generic Names in Zoology:
 - (a) *Cylichnostomum* Looss, 1901 (a junior objective synonym of *Cyathostomum* Molin, 1861);
 - (b) *Cylicostomum* Railliet, 1901 (a junior objective synonym of *Cyathostomum* Molin, 1861).
- (5) The following names are hereby placed on the Official Index of Rejected and Invalid Specific Names in Zoology:
 - (a) *hexacanthum* Wedl, 1856, as published in the binomen *Sclerostoma hexacanthum* (a junior objective synonym of *Strongylus tetracanthus* Mehlis, 1831);
 - (b) *aegyptiacum* Railliet, 1923, as published in the binomen *Trichonema aegyptiacum* and as defined by the lectotype designated by Gibbons & Lichtenfels (1999) (a junior objective synonym of *Strongylus tetracanthus* Mehlis, 1831).

History of Case 3075

An application for the conservation of the specific names of *Strongylus tetracanthus* Mehlis, 1831 and *Cyathostomum catinatum* Looss, 1900 by the designation of a neotype for *S. tetracanthus* was received from Dr L.M. Gibbons (*The Royal*

Veterinary College, University of London, Hatfield, Herts, U.K.) and Dr J.R. Lichtenfels (Agricultural Research Service, U.S. Department of Agriculture, Beltsville, Maryland, U.S.A.) on 15 December 1997. After correspondence the case was published in BZN **56**: 230–234 (December 1999). Notice of the case was sent to appropriate journals.

Decision of the Commission

On 1 December 2000 the members of the Commission were invited to vote on the proposals published in BZN **56**: 233. At the close of the voting period on 1 March 2001 the votes were as follows:

Affirmative votes — 20: Alonso-Zarazaga, Bock, Bouchet (part), Brothers, Cogger, Eschmeyer, Kerzhner, Kraus, Lamas, Macpherson, Mahnert, Martins de Souza, Minelli, Ng, Nielsen, Papp, Patterson, Rosenberg, Song, Štys

Negative votes — 1: Calder.

No votes were received from Dupuis, Mawatari and Ride.

Bouchet abstained from voting on proposal (5) on BZN **56**: 233.

Ng commented: 'I support the case because the applicants consulted with Dr Hartwich, who designated the original lectotype for *Cyathostomum tetracanthum* (para. 9 of the application). Dr Hartwich supports the current proposals, and these also have the support of workers in the field (para. 10)'.

Original references

The following are the original references to the names placed on Official Lists and Official Indexes by the ruling given in the present Opinion:

aegyptiacum, *Trichonema*, Railliet, 1923, *Annales de Parasitologie Humaine et Comparée*, **1**: 13.

catinatum, *Cyathostomum*, Looss, 1900, *Zentralblatt für Bakteriologie Parasitenkunde, Infektionskrankheiten und Hygiene, Abteilung 1, Originale 1*, **27**: 156.

Cyathostomum Molin, 1861, *Memorie del Reale Istituto Veneto di Scienze, Lettere ed Arti*, **9**: 453.

Cylichnostomum Looss, 1901, *Records of the Egyptian Government School of Medicine, Cairo*, **1**: 36, 86.

Cylicostomum Railliet, 1901, *Echo Vétérinaire (Liège)*, **30**(1): 40.

hexacanthum, *Sclerostoma*, Wedl, 1856, *Sitzungsberichte der Akademie der Wissenschaften, Mathematisch-Naturwissenschaftliche Classe*, **19**: 53.

tetracanthus, *Strongylus*, Mehlis, 1831, *Isis von Oken*, **24**: 79.

The following is the reference for the designation of the lectotype of *Trichonema aegyptiacum* Railliet, 1923:

Gibbons, L.M. & Lichtenfels, J.R. 1999. BZN **56**: 232.

OPINION 1973

***Bulinus wrighti* Mandahl-Barth, 1965 (Mollusca, Gastropoda): specific name conserved**

Keywords. Nomenclature; taxonomy; Gastropoda; PLANORBIDAE; ACHATINIDAE; *Pseudachatina wrightii*; *Bulinus wrighti*; schistosomiasis.

Ruling

- (1) Under the plenary power it is hereby ruled that the specific name *wrighti* Mandahl-Barth, 1965, as published in the trinomen *Bulinus reticulatus wrighti*, is not invalid by reason of being a junior primary homonym of *Bulinus wrightii* Sowerby, 1853.
- (2) The following names are hereby placed on the Official List of Specific Names in Zoology:
 - (a) *wrightii* Sowerby, 1853, as published in the binomen *Bulinus wrightii* Sowerby, 1853;
 - (b) *wrighti* Mandahl-Barth, 1965, as published in the trinomen *Bulinus reticulatus wrighti* (not invalid by the ruling in (1) above).

History of Case 3126

An application for the conservation of the specific name of *Bulinus reticulatus wrighti* Mandahl-Barth, 1965, a junior homonym of *Bulinus wrightii* Sowerby, 1853, was received from Dr D.S. Brown, Mr F. Naggs and Dr V.R. Southgate (*The Natural History Museum, London, U.K.*) on 20 November 1998. After correspondence the case was published in BZN 56: 113–116 (June 1999). Notice of the case was sent to appropriate journals.

A comment from Prof L.B. Holthuis (*Nationaal Natuurhistorisch Museum, Leiden, The Netherlands*) was published in BZN 57: 42–43 (March 2000). A reply by the three original authors was published at the same time.

Decision of the Commission

On 1 December 2000 the members of the Commission were invited to vote on the proposals published in BZN 56: 115. At the close of the voting period on 1 March 2001 the votes were as follows:

Affirmative votes — 20: Alonso-Zarazaga, Bock, Bouchet, Brothers, Calder, Cogger, Eschmeyer, Kerzhner, Kraus, Lamas, Macpherson, Mahnert, Ng, Nielsen, Papp, Patterson, Rosenberg, Ride, Song, Štýp

Negative votes — 2: Martins de Souza and Minelli.

No votes were received from Dupuis and Mawatari.

Minelli commented: 'I would have preferred that the Commission take Prof Holthuis's advice and rule that Sowerby (1853) made a clerical error, writing *Bulinus* in place of *Bulimus*, and that there is no primary homonymy between *B. wrightii* Sowerby, 1853 and *B. wrighti* Mandahl-Barth, 1954'.

Original references

The following are the original references to the names placed on an Official List by the ruling given in the present Opinion:

wrightii, *Bulinus reticulatus*, Mandahl-Barth, 1965, *Bulletin of the World Health Organisation*, **33**(1): 41.

wrightii, *Bulinus*, Sowerby, 1853, *Description of a new Bulinus. 1853. Bulinus wrightii*; G.B. Sowerby, *Sen.* [Pamphlet].

OPINION 1974

Polydora websteri* Hartman in Loosanoff & Engle, 1943 (Annelida, Polychaeta): specific name conserved by a ruling that it is not to be treated as a replacement for *P. caeca* Webster, 1879, and a lectotype designated for *P. websteri

Keywords. Nomenclature; taxonomy; Polychaeta; SPIONIDAE; *Polydora caeca*; *Polydora websteri*; mudworms.

Ruling

- (1) Under the plenary power it is hereby ruled that the specific name *websteri* Hartman in Loosanoff & Engle, 1943, as published in the binomen *Polydora websteri*, is to be treated as the specific name of a then new nominal species and not as a replacement name for *Polydora caeca* Webster, 1879.
- (2) The specimen LACM-AHF POLY 1628 collected in the mouth of Milford River, Long Island Sound, Connecticut, by J.B. Engle in 1943 and kept in the Allan Hancock Foundation Polychaete Collection, Los Angeles County Museum of Natural History, is hereby designated as the lectotype of *Polydora websteri* Hartman in Loosanoff & Engle, 1943.
- (3) The name *websteri* Hartman in Loosanoff & Engle, 1943, as published in the binomen *Polydora websteri* and as defined by the lectotype designated in (2) above is hereby placed on the Official List of Specific Names in Zoology.

History of Case 3080

An application to conserve the specific name of *Polydora websteri* Hartman in Loosanoff & Engle, 1943 by a ruling that it should not be treated as a replacement name for the junior homonym *P. caeca* Webster, 1879, and to designate a lectotype for *P. websteri*, was received from Dr Vasily I. Radashevsky (*Institute of Marine Biology, Vladivostok, Russia*) and Dr Jason D. Williams (*University of Rhode Island, Kingston, Rhode Island, U.S.A.*) on 5 February 1998. After correspondence the case was published in BZN 55: 212–216 (December 1998). Notice of the case was sent to appropriate journals.

Comments in support of the application from Dr Geoffrey B. Read (*National Institute of Water and Atmospheric Research, Kilbirnie, Wellington, New Zealand*) and from Dr Mary E. Petersen (*Zoological Museum, University of Copenhagen, Copenhagen, Denmark*) were published in BZN 57: 43–45 (March 2000).

The papers cited in the application as ‘Radashevsky, in press’ (para. 9) and ‘Williams & Radashevsky, in press’ (para. 10) were subsequently published and cited in the comment by Dr Read (BZN 57: 44 and 45 respectively).

A note of clarification by Drs Radashevsky and Williams on the status of the new name *Polydora neocaeca* Williams & Radashevsky, 1999 was published in BZN 57: 110–111 (June 2000).

It was noted on the voting paper that in 1971 Blake (p. 6) listed LACM-AHF 1569 in the Los Angeles County Museum as ‘Type’ of *Polydora websteri*. The nine

specimens originally under this number were collected from the Gulf of Mexico and Lemon Bay, Florida by Hartman on 10 January 1938. Blake's (1971) action did not constitute a lectotype designation (Article 74.6 of the Code); not only was it unlikely (see below) that LACM-AHF 1569 formed part of Hartman's syntype series for *P. websteri*, but under the Code the type material of *P. websteri* was Webster's (lost) single specimen of *P. caeca*. Commission action was needed to treat *P. websteri* as the name of a new species.

Under *Polydora websteri*, Hartman (1943) wrote: 'The collection on which the present description is based is deposited in the Allan Hancock Foundation of the University of Southern California. It was collected from vesicles on empty oyster shells, in the mouth of the Milford River, by J.B. Engle of the Milford Wildlife Laboratory'. This material, numbered N1929 by Hartman, consisted of 13 syntypes collected on 4 January 1943, and is that from which the lectotype has been selected.

Decision of the Commission

On 1 December 2000 the members of the Commission were invited to vote on the proposals published in BZN 55: 214–215. At the close of the voting period on 1 March 2001 the votes were as follows:

Affirmative votes — 21: Alonso-Zarazaga, Bock, Bouchet, Brothers, Calder, Eschmeyer, Kerzhner, Kraus, Lamas, Macpherson, Mahnert, Martins de Souza, Minelli, Ng, Nielsen, Papp, Patterson, Rosenberg, Ride, Song, Štys

Negative votes — 1: Cogger.

No votes were received from Dupuis and Mawatari.

Ng commented: 'Approval of the application will maintain stability and I support the applicants' proposal to treat Hartman's (1943) name *websteri* as the name for a distinct species'.

Original reference

The following is the original reference to the name placed on an Official List by the ruling given in the present Opinion:

websteri, *Polydora*, Hartman in Loosanoff & Engle, 1943, *Biological Bulletin*, 85: 70.

The following is the reference for the description of the lectotype of *Polydora websteri* Hartman in Loosanoff & Engle, 1943:

Radashevsky, V.I. 1999. *Ophelia*, 51(2): 107–113.

OPINION 1975

***Musca geniculata* De Geer, 1776 and *Stomoxys cristata* Fabricius, 1805 (currently *Siphona geniculata* and *Siphona cristata*; Insecta, Diptera): specific names conserved by the replacement of the lectotype of *M. geniculata* by a neotype**

Keywords. Nomenclature; taxonomy; Insecta; Diptera; TACHINIDAE; *Siphona*; *Siphona geniculata*; *Siphona cristata*.

Ruling

- (1) Under the plenary power all previous fixations of type specimens for the nominal species *Musca geniculata* De Geer, 1776 are hereby set aside and the male neotype collected in Sweden and kept in the Museum of Zoology, Lund University, and labelled 'Sk. Dalby, Ö. Mölla, 21.VII.1989, leg. R. Danielsson', is hereby designated as the neotype.
- (2) To the entry on the Official List of Specific Names in Zoology for *Musca geniculata* De Geer, 1776 is hereby added an endorsement recording that the species is defined by the neotype designated in (1) above.
- (3) The name *cristata* Fabricius, 1805, as published in the binomen *Stomoxys cristata* and as defined by the holotype in the Zoological Museum, University of Copenhagen, is hereby placed on the Official List of Specific Names in Zoology.

History of Case 3084

An application for the conservation of the specific names of *Musca geniculata* De Geer, 1776 and *Stomoxys cristata* Fabricius, 1805 by the replacement of the lectotype for *M. geniculata* by a neotype was received from Dr Benno Herting and Dr Hans-Peter Tschorsnig (*Staatliches Museum für Naturkunde, Stuttgart, Germany*) and Dr James E. O'Hara (*Eastern Cereal and Oilseed Research Centre, Agriculture and Agri-Food Canada, Ottawa, Ontario, Canada*) on 26 February 1998. After correspondence the case was published in BZN 56: 235–239 (December 1999). Notice of the case was sent to appropriate journals.

The names of *Siphona* Meigen, 1803 and of its type species, *Musca geniculata* De Geer, 1776, were placed on Official Lists in Opinion 1008 (June 1974). However, the identity of the type material of *M. geniculata* was not then an issue.

Decision of the Commission

On 1 December 2000 the members of the Commission were invited to vote on the proposals published in BZN 56: 237–238. At the close of the voting period on 1 March 2001 the votes were as follows:

Affirmative votes — 20: Alonso-Zarazaga, Bock, Bouchet, Brothers, Calder, Cogger, Eschmeyer, Kerzhner, Kraus, Lamas, Macpherson, Mahnert, Martins de Souza, Minelli, Nielsen, Papp, Patterson, Rosenberg, Song, Štys

Negative votes — 1: Ng.

No votes were received from Dupuis, Mawatari and Ride.

Voting for, Bouchet commented: 'The transfer of the name *Siphona geniculata* (De Geer, 1776) to another species is unwarranted in view of the body of literature (para. 6 of the application) that has used it in the sense of the proposed neotype'. Voting against, Ng commented: 'I am not totally convinced that the name changes set out in para. 8 of the application will cause dramatic confusion. The switch of names does not affect the concept of the genus, and the changes were made by an expert in the group'.

Original references

The following are the original references to the name placed on an Official List, and to the endorsement added to the entry on an Official List, by the ruling given in the present Opinion: *cristata*, *Stomoxys*, Fabricius, 1805, *Systema antliatorum secundum ordines, genera, species*, p. 281. *geniculata*, *Musca*, De Geer, 1776, *Mémoires pour servir à l'histoire des insectes*, vol. 6, p. 38.

OPINION 1976

Solenopsis invicta Buren, 1972 (Insecta, Hymenoptera): specific name conserved

Keywords. Nomenclature; taxonomy; Hymenoptera; FORMICIDAE; fire ants; *Solenopsis invicta*; *Solenopsis wagneri*.

Ruling

- (1) Under the plenary power the specific name *wagneri* Santschi, 1916, as published in the trinomen *Solenopsis saevissima wagneri*, is hereby suppressed for the purposes of the Principle of Priority but not for those of the Principle of Homonymy.
- (2) The name *invicta* Buren, 1972, as published in the binomen *Solenopsis invicta*, is hereby placed on the Official List of Specific Names in Zoology.
- (3) The name *wagneri* Santschi, 1916, as published in the trinomen *Solenopsis saevissima wagneri* and as suppressed in (1) above, is hereby placed on the Official Index of Rejected and Invalid Specific Names in Zoology.

History of Case 3069

An application for the conservation of the specific name of *Solenopsis invicta* Buren, 1972 by the suppression of the senior subjective synonym *Solenopsis saevissima wagneri* Santschi, 1916 was received from Dr Steven O. Shattuck (CSIRO, Canberra, Australia), Dr Sanford D. Porter and Dr Daniel P. Wojcik (USDA, Agricultural Research Service, Gainesville, Florida, U.S.A.) on 15 September 1997. After correspondence the case was published in BZN 56: 27–30 (March 1999). Notice of the case was sent to appropriate journals.

Comments in support of the application from Prof Walter R. Tschinkel (Florida State University, Tallahassee, Florida, U.S.A.), Prof Edward O. Wilson (Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, U.S.A.) and Dr S.B. Vinson (Entomology Research Laboratory, College of Agriculture and Life Sciences, Texas A & M University, Texas, U.S.A.) were published in BZN 56: 198–199 (September 1999).

An opposing comment by Dr Stephen W. Taber (St Edward's University, Austin, Texas, U.S.A.) was published in BZN 56: 199 (September 1999). A reply by Dr Sanford D. Porter on behalf of all three authors of the application was published in BZN 57: 48–49 (March 2000).

A list of the names and addresses of the 76 supporters of the application at the 1998 Annual Fire Ant Research Conference at Hot Springs, Arkansas is held by the Commission Secretariat (para. 5).

Decision of the Commission

On 1 December 2000 the members of the Commission were invited to vote on the proposals published in BZN 56: 28–29. At the close of the voting period on 1 March 2001 the votes were as follows:

Affirmative votes — 20: Alonso-Zarazaga, Bock, Bouchet, Brothers, Calder, Eschmeyer, Kerzhner, Kraus, Lamas, Macpherson, Mahner, Minelli, Ng, Nielsen, Papp, Patterson, Rosenberg, Ride, Song, Štys

Negative votes — 2: Cogger and Martins de Souza.

No votes were received from Dupuis and Mawatari.

Voting for, Alonso-Zarazaga commented: 'Although I am voting for the conservation of the specific name of *Solenopsis invicta* so that its usage can be maintained, I regret that priority is being overturned for a recently published name because its author (Buren, 1972) omitted to make a thorough check of the available names when describing the taxon'. Bouchet commented: 'Although Buren's name is invalid, and *Solenopsis wagneri* Santschi, 1916 is the correct name for the fire ant in question, I am overwhelmed by the 1,800 scientific publications which have used the name *S. invicta* since 1972 (para. 3 of the application). Usage should be maintained'. Ng commented: 'I am convinced that the adoption of priority in this case would be a disservice. From the comments by other scientists, particularly Dr E.O. Wilson, I feel sure that the application is supported by the majority of practising ant specialists'. Voting against, Cogger commented: 'Although I agree with the objective of the application (maintenance of the accepted name *Solenopsis invicta*), it is clear from the history of the taxa involved that the taxonomy of the group is far from stable and that the subjective synonymy is likely to change in future. There is no justification for suppressing *S. wagneri* and, instead, the objective would have been better achieved by giving precedence to *S. invicta* over *S. wagneri* whenever an author treated them as conspecific'.

Original references

The following are the original references to the names placed on an Official List and an Official Index by the ruling given in the present Opinion:

invicta, *Solenopsis*, Buren, 1972, *Journal of the Georgia Entomological Society*, 7: 9.
wagneri, *Solenopsis saevissima*, Santschi, 1916, *Physis* (Buenos Aires), 2: 380.

OPINION 1977***Ichthyosaurus cornalianus* Bassani, 1886 (currently *Mixosaurus cornalianus*; Reptilia, Ichthyosauria): neotype designated**

Keywords. Nomenclature; taxonomy; Ichthyosauria; *Mixosaurus*; *Mixosaurus cornalianus*; Triassic; Grenzbitumenzone; Besano Formation; Monte San Giorgio/Besano Basin.

Ruling

- (1) Under the plenary power all previous fixations of type specimens for the nominal species *Ichthyosaurus cornalianus* Bassani, 1886 are hereby set aside and specimen no. T2420 in the Paläontologisches Institut und Museum der Universität Zürich is hereby designated as the neotype.
- (2) The name *Mixosaurus* Baur, 1887 (gender: masculine), type species by original designation *Ichthyosaurus cornalianus* Bassani, 1886, is hereby placed on the Official List of Generic Names in Zoology.
- (3) The name *cornalianus* Bassani, 1886, as published in the binomen *Ichthyosaurus cornalianus* and as defined by the neotype designated in (1) above (specific name of the type species of *Mixosaurus* Baur, 1887), is hereby placed on the Official List of Specific Names in Zoology.

History of Case 3122

An application for the designation of a neotype for the nominal species *Ichthyosaurus cornalianus* Bassani, 1886 was received from Dr Winand Brinkmann (*Paläontologisches Institut und Museum, Universität Zürich, Zürich, Switzerland*) on 1 March 1999. After correspondence the case was published in BZN 56: 247–249 (December 1999). Notice of the case was sent to appropriate journals.

Decision of the Commission

On 1 December 2000 the members of the Commission were invited to vote on the proposals published in BZN 56: 248–249. At the close of the voting period on 1 March 2001 the votes were as follows:

Affirmative votes — 21: Alonso-Zarazaga, Bock, Bouchet, Brothers, Calder, Cogger, Eschmeyer, Kerzhner, Kraus, Lamas, Macpherson, Mahnert, Martins de Souza, Minelli, Ng, Nielsen, Papp, Patterson, Rosenberg, Song, Štys

Negative votes — none.

No votes were received from Dupuis, Mawatari and Ride.

Brothers commented: 'I vote for the application to ensure that possible differences of view on the validity of previous type designations (para. 4 of the application) do not lead to instability'.

Original references

The following are the original references to the names placed on Official Lists by the ruling given in the present Opinion:

cornalianus, *Ichthyosaurus*, Bassani, 1886, *Atti della Società Italiana di Scienze Naturali*, 29: 20.
Mixosaurus Baur, 1887, *Bericht über die XX Versammlung des Oberrheinischen geologischen Vereins*, p. 19.

OPINION 1978

***Myoxus japonicus* Schinz, 1845 (currently *Glirulus japonicus*; Mammalia, Rodentia): specific name conserved as the correct original spelling**

Keywords. Nomenclature; taxonomy; Mammalia; Rodentia; GLIRIDAE; *Glirulus*; *Glirulus japonicus*; Japanese dormouse; Japan.

Ruling

- (1) Under the plenary power it is hereby ruled that the specific name *javanicus* Schinz, 1845, as published in the binomen *Myoxus javanicus*, is an incorrect original spelling of *japonicus*.
- (2) The name *Glirulus* Thomas, 1906 (gender: masculine), type species by monotypy *Myoxus japonicus* Schinz, 1845, is hereby placed on the Official List of Generic Names in Zoology.
- (3) The name *japonicus* Schinz, 1845, as published in the binomen *Myoxus japonicus* and as ruled in (1) above to be the correct original spelling of *javanicus* (specific name of the type species of *Glirulus* Thomas, 1906), is hereby placed on the Official List of Specific Names in Zoology.
- (4) The following names are hereby placed on the Official Index of Rejected and Invalid Specific Names in Zoology:
 - (a) *javanicus* Schinz, 1845, as published in the binomen *Myoxus javanicus* and as ruled in (1) above to be an incorrect original spelling;
 - (b) *elegans* Temminck, 1844, as published in the binomen *Myoxus elegans* (an invalid senior objective synonym of *Myoxus japonicus* Schinz, 1845);
 - (c) *lasiotis* Thomas, 1880, as published in the binomen *Myoxus lasiotis* (a junior objective synonym of *Myoxus elegans* Temminck, 1844 and of *Myoxus japonicus* Schinz, 1845).

History of Case 3033

An application for the conservation of the specific name of *Myoxus japonicus* Schinz, 1845 was received from Dr Chris Smeenk (*Nationaal Natuurhistorisch Museum, Leiden, The Netherlands*) and Dr Yukibumi Kaneko (*Kagawa University, Takamatsu, Japan*) on 17 October 1996. After correspondence the case was published in *BZN* 57: 36–38 (March 2000). Notice of the case was sent to appropriate journals.

It was noted on the voting paper that the Japanese dormouse is entered in the 1996 *IUCN Red List of Threatened Animals* (Eds. Baillie, J. & Groombridge, B.) under the name *Glirulus japonicus*.

Decision of the Commission

On 1 December 2000 the members of the Commission were invited to vote on the proposals published in *BZN* 57: 37. At the close of the voting period on 1 March 2001 the votes were as follows:

Affirmative votes — 19: Alonso-Zarazaga, Bock, Brothers, Calder, Cogger, Eschmeyer, Kerzhner, Kraus, Lamas, Macpherson, Mahnert, Martins de Souza, Minelli, Ng, Nielsen, Papp, Rosenberg, Song, Štys

Negative votes — 1: Patterson.

No votes were received from Bouchet, Dupuis, Mawatari and Ride.

Original references

The following are the original references to the names placed on Official Lists and an Official Index by the ruling given in the present Opinion:

elegans, *Myoxus*, Temminck, 1844, in Siebold, Ph. Fr. de, Temminck, C.J. & Schlegel, H. (Eds.), *Fauna Japonica*, p. 52.

Glirulus Thomas, 1906, *Proceedings of the Zoological Society of London*, **1905**(2): 347.

japonicus, *Myoxus*, Schinz, 1845, *Systematisches Verzeichniss aller bis jetzt bekannten Säugethiere oder Synopsis Mammalium nach dem Cuvier'schen System*, vol. 2, p. 530.

javanicus, *Myoxus*, Schinz, 1845, *Systematisches Verzeichniss aller bis jetzt bekannten Säugethiere oder Synopsis Mammalium nach dem Cuvier'schen System*, vol. 2, p. 530.

lasiotis, *Myoxus*, Thomas, 1880, *Proceedings of the Zoological Society of London*, **1880**(1): 40.

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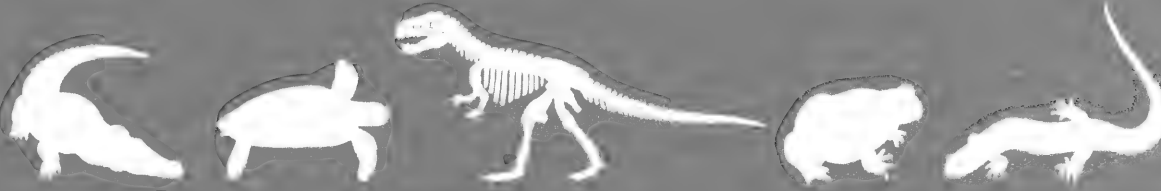
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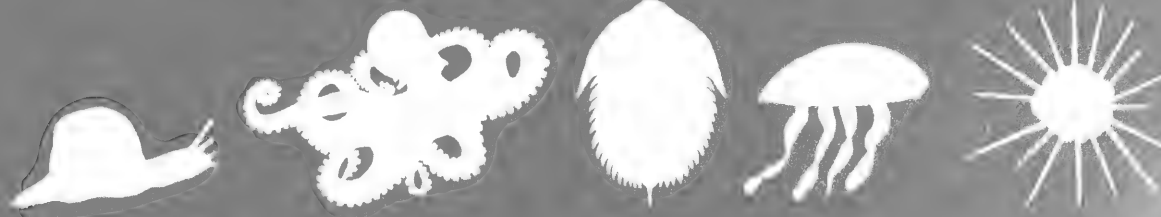
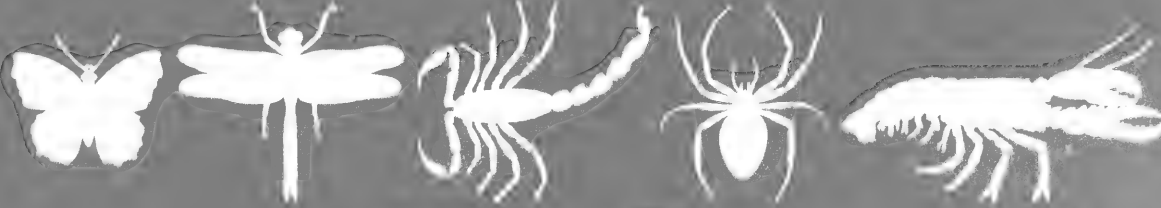
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Cromwell Road,
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BULLETIN OF ZOOLOGICAL NOMENCLATURE

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Notices

(a) *Invitation to comment.* The Commission is authorised to vote on applications published in the *Bulletin of Zoological Nomenclature* six months after their publication but this period is normally extended to enable comments to be submitted. Any zoologist who wishes to comment on any of the applications is invited to send his contribution to the Executive Secretary of the Commission as quickly as possible.

(b) *Invitation to contribute general articles.* At present the *Bulletin* comprises mainly applications concerning names of particular animals or groups of animals, resulting comments and the Commission's eventual rulings (Opinions). Proposed amendments to the Code are also published for discussion.

Articles or notes of a more general nature are actively welcomed provided that they raise nomenclatural issues, although they may well deal with taxonomic matters for illustrative purposes. It should be the aim of such contributions to interest an audience wider than some small group of specialists.

(c) *Receipt of new applications.* The following new applications have been received since going to press for volume 58, part 2 (published on 29 June 2001). Under Article 82 of the Code, existing usage is to be maintained until the ruling of the Commission is published.

Case 3203. *Sauripterus* Hall, 1843 (Osteichthyes, Sarcopterygii): proposed conservation as the correct original spelling of *Sauripteris*. J.E. Jeffery, M.C. Davis, E.B. Daeschler & N.H. Shubin.

Case 3204. *Viverra maculata* Gray, 1830 (currently *Genetta maculata*; Mammalia, Carnivora): proposed conservation of the specific name and designation of a neotype; *Genetta thierryi* Matschie, 1902: proposed conservation of the specific name. P. Gaubert et al.

Case 3205. *Cyphosoma* Mannerheim, 1837 and *Halecia* Laporte & Gory, 1837 (Insecta, Coleoptera): proposed conservation. S. Bílý & C.L. Bellamy.

Case 3206. *Halcampella* Andres, 1884 (Cnidaria, Anthozoa): proposed designation of *H. maxima* Hertwig, 1888 as the type species. E. Rodríguez & P.J. López-González.

Case 3207. STAPHYLINIDAE Latreille, 1804 (Insecta, Coleoptera): proposed conservation of 82 specific names. L.H. Herman.

Case 3208. *Geodromicus* Redtenbacher, 1857 (Insecta, Coleoptera): proposed precedence over *Psephidonus* Gistel, 1856. L.H. Herman.

Case 3209. *Lesteva* Latreille, 1797 (Insecta, Coleoptera): proposed designation of *L. punctulata* Latreille, 1804 (currently *L. longolytrata* (Goeze, 1777)) as the type species. L.H. Herman.

Case 3210. *Catocala alabamae* Grote, 1875 (Insecta, Lepidoptera): proposed conservation of the specific name. L.F. Gall.

Case 3211. CLIONIDAE d'Orbigny, 1851 (Porifera, Hadromerida): proposed emendment of spelling to CLIONAIDAE to remove homonymy with CLIONIDAE Rafinesque, 1815 (Mollusca, Gastropoda). P. Bouchet & K. Rützler.

(d) *Rulings of the Commission*. Each Opinion published in the *Bulletin* constitutes an official ruling of the International Commission on Zoological Nomenclature, by virtue of the votes recorded, and comes into force on the day of publication of the *Bulletin*.

Official Lists and Indexes of Names and Works in Zoology — Supplement 1986–2000

The volume entitled *Official Lists and Indexes of Names and Works in Zoology* (ISBN 0 85301 004 8) was published in 1987. It gave details of the names and works on which the Commission had ruled and placed on the Official Lists and Indexes since it was set up in 1895 through to the end of 1985. The volume contained 9917 entries, 9783 being family-group, generic or specific names and 134 relating to works.

In the 15 years between 1986 and the end of 2000 a further 601 Opinions and Directions have been published in the *Bulletin* listing 2371 names and 14 works placed on the Official Lists and Indexes. Details of these 2385 entries are given in a Supplement of 141 pages (ISBN 0 85301 007 2) published early in 2001. Additional sections include (a) a systematic index of names on the Official Lists covering both the 1987 volume and the Supplement; (b) a table correlating the nominal type species of genera listed in the 1987 volume with the valid names of those species when known to be different; and (c) emendments to the 1987 volume.

The cost of the 1987 volume and of the Supplement is £60 or \$110 each, and £100 or \$170 for both volumes ordered together.

Individual buyers of the volumes for their own use are offered a price of £50 or \$85 for each volume, and £90 or \$150 for both.

Individual members of the American or European Association for Zoological Nomenclature are offered a price of £45 or \$70 for each volume, and £80 or \$120 for both.

Prices include postage by surface mail; for Airmail, please add £3 or \$5 for each volume.

Copies may be ordered from: ITZN, c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk), or AAZN, Attn. D.G. Smith, MRC-159, National Museum of Natural History, Washington, D.C. 20560-0159, U.S.A. (e-mail: smith.davidg@nsmnh.si.edu).

Payment should accompany orders. Cheques should be made out to 'ITZN' (in sterling or dollars) or to 'AAZN' (in dollars only). Payment to ITZN (but not to AAZN) can also be made by Visa or MasterCard giving the cardholder's number, name and address and the expiry date.

The International Code of Zoological Nomenclature

The new and extensively revised 4th Edition of the *International Code of Zoological Nomenclature* (ISBN 0 85301 006 4) was published (in a bilingual volume in English and French) in August 1999. It came into effect on 1 January 2000 and entirely supersedes the 3rd (1985) edition.

The price of the English and French volume of the 4th Edition is £40 or \$65; the following discounts are offered:

Individual members of a scientific society are offered a discount of 25% (price £30 or \$48); the name and address of the society should be given.

Individual members of the American or European Associations for Zoological Nomenclature are offered a discount of 40% (price £24 or \$39).

Postgraduate or undergraduate students are offered a discount of 25% (price £30 or \$48); the name and address of the student's supervisor should be given.

Institutions or agents buying 5 or more copies are offered a 25% discount (price £30 or \$48 for each copy).

Prices include surface postage; for Airmail please add £2 or \$3 per copy.

Copies may be ordered from: ITZN, c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk), or AAZN, Attn. D.G. Smith, MRC-159, National Museum of Natural History, Washington, D.C. 20560-0159, U.S.A. (e-mail: smith.davidg@nsmnh.si.edu).

Payment should accompany orders. Cheques should be made out to 'ITZN' (in sterling or dollars) or to 'AAZN' (in dollars only). Payment to ITZN (but not to AAZN) can also be made by Visa or MasterCard giving the cardholder's number, name and address and the expiry date.

Individual purchasers of the Code are offered a 50% discount on the following publications for personal use:

Towards Stability in the Names of Animals — a History of the International Commission on Zoological Nomenclature 1895–1995 (1995) — reduced from £30 to £15 and from \$50 to \$25;

The Bulletin of Zoological Nomenclature (the Commission's quarterly journal) — discount valid for up to four years; for 2001 the discounted price would be £57 or \$105.

Official texts of the Code in several languages have been authorized by the Commission, and all (including English and French) are equal in authority. German, Japanese, Russian and Spanish texts have now been published and others are planned. Details of price and how to buy the published texts can be obtained from the following e-mail addresses:

German — books@insecta.de

Japanese — tomokuni@kahaku.go.jp

Russian — kim@ik3599.spb.edu

Spanish — mcnb168@mncn.csic.es

Zoological nomenclature — reflections on the recent past and ideas for our future agenda

Alessandro Minelli

*Department of Biology, University of Padova, Via Ugo Bassi 58 B,
I 35131 Padova, Italy*

A couple of weeks after the start of my service as President of the International Commission on Zoological Nomenclature, a paper of mine appeared in this Bulletin (Minelli, 1995) in which I outlined some major challenges to be faced by biological nomenclature in response to the changing paradigms of biological systematics. Now, with the approaching end of my six-year term as President, I wish to look in retrospect at the recent history of the Commission, briefly touching on successes and failures alike, and to outline what I now see, from the vantage point of my experience, as further challenges and responsibilities awaiting us; by 'us' I mean not merely the Commission but all those active in the field of zoological (or biological) taxonomy.

The main message I will try to convey in this open letter is that a major effort is necessary in order to better integrate the Commission's work into the daily practice of taxonomists world-wide (and also, in a sense, vice versa).

The Commission and the zoological community

I have come to realise how poorly known amongst zoologists is the activity (or often even the existence) of the Commission. The *Code*, despite the thousands of copies printed and sold and the translations now available in several languages, is far from being on the shelves of all practising taxonomists. The *Bulletin* is only present in a relatively few libraries, mostly in the richer countries, and is largely ignored as a taxonomist's working tool. As a consequence, the rulings which have been issued by the Commission throughout its history are very often overlooked, despite their obvious relevance and the existence of two most useful volumes that provide an index and summary of them (Melville & Smith, 1987; Smith, 2001). Questions of nomenclature are sometimes discussed by zoologists, on a personal level, with ICZN members, but this usually happens because the latter are individually known and appreciated within the local, national or taxonomically specialist community as being knowledgeable in these matters, rather than because of their official affiliation with the Commission. Many more queries are addressed to the Commission's Secretariat in London (more numerous indeed than the limited human and material resources available there can readily cope with). Nevertheless, all these questions are just the tip of a huge iceberg of problems of nomenclature floating through the zoological community, sometimes over years and decades without ever being adequately resolved.

Some steps have been taken, however, in order to increase the public awareness of the importance of zoological nomenclature, thus improving the visibility of the *Code* and the Commission's activity. It is not irrelevant, in my view, that a journal such as *Science* devoted to the fourth edition of the *Code* a two-column article in its 7 January 2000 issue (Pennisi, 2000), that is in the very week the new *Code* came into

effect. Neither is it irrelevant that an appreciated and widely read monthly such as *Trends in Ecology and Evolution* hosted my paper on *The names of animals* in its December 1999 issue (Minelli, 1999). The organizers of the XVIII International Congress of Zoology (Athens, August 2000) selected nomenclature as subject for a General Discussion session that was more than satisfactorily attended. The titles and Abstracts of applications and Commission rulings published in the Bulletin are now displayed on the Commission's Website (www.iczn.org) and so are exposed to a very wide audience.

The time is ripe for 'renegotiating' the relationships between the Commission and the zoological community. I am not speaking of constitutional matters, such as ICZN's affiliation with the International Union of Biological Sciences — in this area, I do not see any reason for proposing changes to the current state of affairs — but of the question: how should the problems of nomenclature be addressed in the near future? To better explain my mind, let me deal with new names and old names separately.

Up to now, the Commission has only dealt with new names when writing or updating the relevant provisions in the *Code*; those rules are then placed in taxonomists' hands and implementation becomes the responsibility of individual workers. Each year thousands of new names thus enter zoological nomenclature through the most diverse bibliographic outlets, some of them exceedingly obscure. A feedback from this activity of taxonomists world-wide will reach the Commission only if, and when, names are found to involve problems which individuals cannot (or do not know how to) solve for themselves. In the meantime, of course, those names have become, in their turn, old names.

Two sets of questions then arise. First, are there any means to improve the way problems with old names are currently addressed by the Commission? Would it be possible to actively involve the whole zoological community in this process? Second, should the Commission take any active role in the 'production' of new names? Specifically, should (or could) the Commission be involved in any future system of name registration? My answer to all these questions is yes. I will briefly try to explain why I think so.

Availability of tools

The *Code* and the rulings issued by the Commission in response to submitted problems are, or should be, basic tools for all work in zoological taxonomy. For instance, the latest *Code* is notable in that it allows individuals to take actions to maintain the prevailing usage of names in many circumstances which previously would have needed formal decisions by the Commission.

With the publication of the fourth edition of the *Code*, some steps have been taken in order to increase its public accessibility. The production of texts in various languages has been strongly encouraged and, for the first time, all of them are equal in authority. At the time of writing the *Code* is available in English, French, German, Japanese, Russian and Spanish, and Chinese and Ukrainian texts are in an advanced state of preparation; others may follow. There are proposals to produce the *Code* on CD, supported by adequate searching software, and for a companion or guide which will be easier to understand than the complex wording of the existing *Code*.

Beyond this, however, I should like to mention two more advanced targets.

The first is a future availability of the *Code* to any user, free of all cost. The only impediment to the adoption of this policy has been, and still is, the precarious financial position of the Commission. The revenue from the sales of the *Code* and subscriptions to the *Bulletin* are, at present, the main source of income which permits the existence of its publications and Secretariat. Technically, it would be easy to have an electronic version of the *Code*, with searching software, placed on a freely accessible Website. Changes to the financial basis must be made as soon as possible, and indeed might actually happen if the scientific community becomes really aware of the service being offered to it by the Commission and its Secretariat.

My second belief is that in the near future we should try to re-write the *Code* itself in a much simpler and more user-friendly way than has been traditional. I am not speaking here of changes in what makes a name available or valid, or in the application of the principle of priority (or other principles) to homonyms or synonyms; nor of the role and power of the Commission to deal with the relatively rare cases which are controversial or where the *Code* does not provide a solution. I am speaking instead of the way the rules have been presented in the successive *Code* editions. The obvious desirability of producing a guide to the *Code*, or of developing simple and powerful searching tools by which to electronically find the Articles of relevance to a particular problem, means in my view that the current rules could be written in a more straightforward way. The price to pay, of course, would be a break with the traditional layout, but this should not imply a break with established rules of nomenclature. Of course, these rules can be changed, and no doubt some will be, but that is another subject.

Together with the free availability of the *Code*, I hope we shall be able to offer the zoological community free and easy access to all the *Opinions* and other rulings issued by the Commission in its 106 years of existence. Digitalization of all relevant documents is currently being considered.

Discussion of cases

At its meeting held in Athens in August 2000 the Commission discussed at length (see BZN 57: 202–206) procedures which might be adopted in the near future, in order to render the discussion of cases more effective, that is (i) with a larger involvement of the zoological community and (ii) with some degree of decentralization in the management of the discussion, thus obtaining (iii) a substantial reduction in the average time between the submission of the case and the Commission's decision. A small committee has continued working on this subject and the results of this exploration, jointly with the Trust (not-for-profit company) set up in the U.K. to administer the Commission's financial affairs, will be available shortly. With my Presidential term expiring, I must refrain from promising the adoption of any specific measure. Nevertheless, it is probable that the Commission will quickly move towards a large use of internet facilities for the discussion of cases. Specialist nomenclature committees of international zoological societies and qualified internet discussion groups may be co-opted by the ICZN for handling individual cases, in order to provide a richer and better argued documentation to be forwarded to the Commission for its eventual ruling. Involving more people in the actual discussion of cases may open the way to a larger involvement of the zoological community also in other vital events in the Commission's life, such as the election of new Commissioners.

Registration of new names

I should like to come back to the subject of names for newly recognised taxa. The Code Discussion Draft which was widely circulated in 1995 included proposed rules for the registration of all new names. The public discussion elicited by that document demonstrated that the concept of registration was generally acknowledged as valuable, even though some were opposed in principle. However, the further work of the Commission and its Editorial Committee, in the light of the comments provided by many zoologists from different countries, proved that it was not possible to retain those rules in the final text of the fourth edition of the *Code* because of difficulties in finding an acceptable way to implement registration. This is not the place to examine the different options we discussed, or the objections raised to them. What truly matters is to stress that the Commission has never abandoned the hope of making registration into a fact, so that all names become visible rather than being buried in the steadily growing mountain of mostly inaccessible publications. I am firmly convinced of the need for the Commission to be closely involved with any form or mechanism of registration, whatever kind of agency will be eventually responsible for it. Very interesting suggestions for cooperation in this respect have been advanced by the publishers of *Zoological Record*, an acknowledged primary tool of every active taxonomist.

New taxonomies and nomenclatures

The Commission cannot (and does not!) quietly sleep in an ivory tower without paying attention to developments around it, whether actual or suggested, and in the recent literature much has been written of ‘challenges’ to the traditional zoological *Code* and, equally, to its botanical companion.

When I became ICZN President there was much interest and apprehension about the ‘*BioCode*’ initiative (see BZN 53: 148–166, September 1996). Several drafts of a unified Code to be eventually adopted for new names of all organisms (bacterial, botanical and zoological) were produced and some lively bursts of discussion developed at international meetings and on the internet. The project was eventually abandoned, mainly owing to manifest difficulties in satisfactorily dealing with already existing names and to unwillingness of many botanists and zoologists alike to part with their traditional rules and to accept registration of new names. For all those who took part in writing or discussing the *BioCode* drafts, however, this was a useful experience in that it invited a closer study of the long experience underlying the other Codes, and it brought about some minor but useful convergences in the most recent editions of these and to the establishment of a standing International Committee on Bionomenclature to facilitate liaison between the bodies responsible for the Codes (see BZN 58: 6–7).

Things are very different with the ‘*PhyloCode*’ (see Forey, 2001), not just because this initiative is still being actively pursued by its proponents and is the subject of sustained debate, but because of the basic conceptual issues involved in the contrast between the traditional (‘Linnaean’) Codes and the proposed *PhyloCode*. In my 1995 paper, I wrote that ‘We must expect that the development of cladistics will increasingly ask for a revised biological nomenclature’, and this is exactly what is happening with the *PhyloCode*. To be sure, to be a cladist does not automatically mean to be in favour of the new proposal. For example, this has been strongly

criticized by cladists such as Nixon & Carpenter (2000) and Forey (2001), who do not subscribe to this plea for abandoning Linnaean nomenclature. The next few years will be interesting in this respect.

I like the challenges and the debates, but I cannot conclude other than by repeating the closing words of my 1999 paper, that is: 'One can imagine that in the future Linnaean and not-Linnaean classification may exist side-by-side. Or maybe not. At any rate, the publication of the new zoological *Code* could be a good opportunity to open the debate. Otherwise, both parties are likely to go astray: Linnaean-style taxonomists on one side, patiently continuing to produce names that others may be unwilling to use, and phylogenists on the other, perhaps too ready to change the rules. It took one century from Linnaeus to the Strickland Code, and another sixty years to the *Règles*. Let's talk to one another. Rules can still evolve but a Code, historically, follows and consolidates practice. It does not establish it from scratch.'

But the dialogue we need to develop is not just the dialogue between the 'phylocoders' and the defenders of Linnaean nomenclature. Starting from a common awareness of the importance of biological systematics, of which nomenclature is a humble but necessary arm, we must all cooperate in developing a common strategy in order to raise, internationally as well as locally, the institutional and financial support that systematic biology fully deserves (Boero, 2001). With a better supported taxonomy, with ICZN's activities much more closely intertwined with taxonomic research than they are at present, and with a much better use of internet facilities, our old Commission should be able to adequately fulfil, well into the new century, its institutional role at the service of zoology.

A personal note

Let me close on a more personal note.

During my six-year term as President there has been a substantial turnover in the Commission's membership. Of the 27 members present at the beginning, 15 (F.M. Bayer, L.R.M. Cocks, J.O. Corliss, G. Hahn, O. Halvorsen, D. Heppell, L.B. Holthuis, Z. Kabata, P.T. Lehtinen, I.W.B. Nye, J.M. Savage, R. Schuster, Y.I. Starobogatov, V.A. Trjapitzin and S.-I. Uéno) retired or left between then and 2000. I wish to thank all of them once more for their valuable contribution to the Commission's work.

In May this year David Ride retired from the Commission after 38 years of service. Twice President, and editorial Chairman of the third (1985) edition of the *Code*, David chaired very sensibly and competently the Editorial Committee for the fourth edition. We worked in very close contact between 1996 and 1999, until the new *Code* was eventually released to the printer. To David I wish to renew the most sincere thanks and appreciation, of the whole Commission and personally mine, for his unique commitment to the Commission and the *Code*.

I wish also to extend my words of thanks and appreciation to four more people who will retire soon from their very long and productive association with the Commission: in alphabetic order, Harold Cogger, ICZN Vice-President for many years, including the first ones of my term; Claude Dupuis, most perceptive and careful textual critic and wordsmith; Otto Kraus, my energetic predecessor as President; and Philip Tubbs, our knowledgeable and enthusiastic Secretary for 16 years. All were members of the *Code* Editorial Committee.

I should also like to thank Jeremy Smith and Anthea Gentry, members of the Secretariat, for their long, loyal and invaluable service to the work of the Commission.

The Commission's membership has not just registered losses. Seventeen new members (M.A. Alonso-Zarazaga, W. Böhme, D.J. Brothers, D.R. Calder, W.N. Eschmeyer, N.L. Evenhuis, R.A. Fortey, R.B. Halliday, I.M. Kerzhner, G. Lamas, S.F. Mawatari, P.K.L. Ng, L. Papp, D.J. Patterson, G. Rosenberg, D.X. Song and J. van Tol) have been elected between 1996 and now, representing fourteen different countries, all continents and a wide range of taxonomic fields. Some of them have already had the opportunity of contributing to the Commission's work in a very substantial way. With them, and with the remaining members of the 'old guard', is the challenge of placing zoological nomenclature on an increasingly sounder footing, with the active involvement of the whole zoological community.

Acknowledgements

I am grateful to Bill Eschmeyer and Philip Tubbs for sharing with me their views, not necessarily coinciding with my own, on most of the items mentioned in this article.

References

- Boero, F.** 2001. Light after dark: the partnership for enhancing expertise in taxonomy. *Trends in Ecology and Evolution*, **16**: 266.
- Nixon, K.C. & Carpenter, J.M.** 2000. On the other 'phylogenetic systematics'. *Cladistics*, **16**: 298–318.
- Forey, P.L.** 2001. The PhyloCode: description and commentary. *Bulletin of Zoological Nomenclature*, **58**: 81–96.
- Melville, R.V. & Smith, J.D.D.** (Eds.). 1987. *Official Lists and Indexes of names and works in zoology*. 360 pp. International Trust for Zoological Nomenclature, London.
- Minelli, A.** 1995. The changing paradigm of biological systematics: new challenges to the principles and practice of biological nomenclature. *Bulletin of Zoological Nomenclature*, **52**: 303–309.
- Minelli, A.** 1999. The names of animals. *Trends in Ecology and Evolution*, **14**: 462–463.
- Pennisi, E.** 2000. Zoology naming rules eased. *Science*, **287**: 26.
- Smith, J.D.D.** (Ed.). 2001. *Official Lists and Indexes of names and works in zoology. Supplement 1986–2000*. 136 pp. International Trust for Zoological Nomenclature, London.

Corrections of authorship and date for gastropod (Mollusca) family-group names placed on the Official List and Official Index

Philippe Bouchet and Jean-Pierre Rocroi

Muséum national d'Histoire naturelle, 55 rue Buffon, 75005 Paris, France
(e-mail: bouchet@mnhn.fr)

Abstract. Of the 90 gastropod (Mollusca) family-group names placed on the Official List (76 names) or the Official Index (14 names), 36 have been entered with an erroneous source of original publication, resulting in the name being listed with wrong author and/or date. The present paper rectifies errors in the List (29 names) and the Index (7 names). The corrections change the date of precedence of the 29 erroneously cited potentially valid names on the List by 1 to 54 years, but, as far as we have ascertained, this will not cause nomenclatural instability. We determined that the remaining 54 gastropod family-group names on the Official List or Index were listed with current references.

There are currently 90 gastropod family-group names placed on the Official List or the Official Index as recorded in the volume *Official Lists and Indexes of Names and Works in Zoology* published in 1987 and the *Supplement 1986–2000* published in 2001. In the course of compiling a nomenclator of molluscan supraspecific names, we have discovered that a high proportion (40%) of these names have been entered with an erroneous source of original publication, resulting in the name being listed with wrong author and/or date.

Under the third (1985) edition of the Code, 'a name entered in an Official List [was] deemed to have any authorship, date, publication, name-bearing type, and additional qualification (such as precedence) attributed to it in the relevant Opinion or Direction' (Article 78f(iii)). A correction to the List or Index could not be made as routine book-keeping work, but necessitated a vote by the Commission under the plenary power. To conform with the provisions of the Code, the present list of corrections was submitted as an application in October 1997 (Case 3056, receipt announced in *BZN* 55: 1), but has not been published. In the meantime, the fourth edition of the Code came into force on 1 January 2000; it states that 'the status of a name entered in an Official List is subject to the ruling(s) in any relevant Opinion(s)' (Article 80.6), but also that 'Official corrections to errors and omissions . . . may be published by the Commission without further vote . . .' (Article 80.4).

The purpose of the present article is to rectify the errors in the List (29 names) and the Index (7 names), and the *Bulletin of Zoological Nomenclature* is the most appropriate forum to publish these corrections in a consolidated manner. In addition, we also consider one of the names (CUTHONIDAE) placed on the List in 1966 (Opinion 773) for which the criteria of availability at the time of its original publication had not been met. We determined that the remaining 54 gastropod family-group names in the Official List or Index were listed with proper references. The corrections change the date of precedence of the 29 erroneously cited potentially valid names on the List by

1 to 54 years. However, as far as we have ascertained, the corrections will not cause nomenclatural instability.

Names on the Official List are in bold type and those on the Official Index are in non-bold type.

ACANTHINULINAE

LIST: (Direction 27, 1955) Pilsbry, 1926, in Tryon, *Manual of Conchology*, (2)**27**: 186.
CORRECTION: Steenberg, 1917 [5 October], *Videnskabelige Meddelelser fra Dansk Naturhistorisk Forening*, **69**: 14.

ACICULIDAE

LIST: (Opinion 344, 1955) Woodward, 1854, *Manual of the Mollusca*. London, Weale: 178.
CORRECTION: Gray, 1850, *Figures of Molluscos Animals*, **4**: 121. (Original spelling ACICULADAE).

ACMAEIDAE

LIST: (Opinion 344, 1955) Carpenter, 1857, *Catalogue of the Reigen Collection of Mazatlan Shells in the British Museum*: 202.
CORRECTION: Forbes, 1850, *Report of the 19th Meeting of the British Association for the Advancement of Science (Birmingham, 1849), Notices and Abstracts of Communications*: 76 (Original spelling ACMAEADAE).

AEOLIDIIDAE

LIST: (Opinion 779, 1966) d'Orbigny, 1834 [sic, should be 1839], Mollusques Échinodermes, Foraminifères et Polypiers, recueillis aux Îles Canaries. In Webb & Berthelot, *Histoire Naturelle des Îles Canaries, Zoologie*: 42.
CORRECTION: Gray, 1827, Plates to Zoology: plate Mollusca. Vol. 7, pl. 3 in: Smedley, Rose & Rose (Eds.), *Encyclopaedia Metropolitana*. (Original spelling EOLIDAE)

AKERIDAE

LIST: (Opinion 539, 1959) Pilsbry, 1893, in Tryon, *Manual of Conchology*, **15**: 350.
CORRECTION: Mazzarelli, 1891, *Zoologischer Anzeiger*, **14**: 243. (Original spelling Aceridae, based on *Acera*, an incorrect subsequent spelling (Opinion 539) of *Akera* O.F. Müller, 1776).

REMARKS: It should be noted that Pilsbry (1893, p. 350) himself wrote 'Subfamily AKERIDAE (ACERIDAE Mazzarelli)', although, strangely enough, he considered himself to be the author of AKERIDAE.

Early nineteenth century authors used the vernacular family name 'Acères'. Latreille (1825, p. 177) first latinized it as 'ACERA', but it did not include, explicitly or implicitly, *Akera*. The latinized family name 'ACERA (Acères, Cuv.)' was used by Menke (1830, p. 12) and explicitly included '*Akera*, Cuv.'. However, Cuvier (1810, p. 1) merely used the vernacular 'Acères' to designate gastropods without tentacles. This was a descriptive term opposed to 'Dicères' (gastropods with two tentacles) and 'Tétracères' (gastropods with four tentacles), first proposed by Blainville (1816, p. 52), and later latinized (Blainville, 1825, p. 487), but not based on an available generic name. Usage of the descriptive terms 'Acères', 'Dicères' and 'Tétracères', or

of their latinized form, was abandoned after 1840, but the first valid introduction of a family-group name based on *Akera* was by Mazzarelli (1891). No current usage attributes AKERIDAE to any of these early 19th century authors.

AMPHIBOLIDAE

LIST: (Opinion 479, 1957) H. & A. Adams, 1855, *The Genera of Recent Mollusca*, **2**: 268.

CORRECTION: Gray, 1840 [16 October], *Synopsis of the Contents of the British Museum*, (Ed. 42): 128, 149.

APLYSIIDAE

LIST: (Opinion 1182, 1981) Swainson, 1840, *A Treatise on Malacology*: 247, 248, 251.

CORRECTION: Lamarck, 1809, *Philosophie Zoologique*, **1**: 320 [as the vernacular 'les Laplysiens', latinized as LAPLYSIANA by Children, 1823, *Quarterly Journal of Science, Literature & the Arts*, **15**: 232]. Also introduced [as LAPLYSINIA] by Rafinesque, 1815, *Analyse de la Nature*: 142.

Current usage. APLYSIIDAE is attributed to Lamarck, 1809 by, e.g., Franc (1968, p. 849), Nordsieck (1972, p. 42), Ros (1975, p. 307), Cattaneo & Barletta (1984, p. 203), Cervera et al. (1988, p. 19), Ortea & Martinez (1990, p. 17), and Sabelli et al. (1992, p. 436); it is attributed to Swainson, 1840, with reference to Opinion 1182 by Hoisaeter (1986, p. 103); and to Rafinesque, 1815 by, e.g., Abbott (1974, p. 342), Arakawa & Hoshino (1982, p. 134), Rios (1985, p. 181), Fukuda (1992, p. 75), and Tracey et al. (1993, p. 155). There is thus no single 'generally accepted' (in the sense of Article 11.7.2) usage of the author and date of APLYSIIDAE. Attributing it to Lamarck appears to be the parsimonious option.

AZECINAE

LIST: (Direction 27, 1955) Kennard & Woodward, 1926, *Synonymy of the British non-marine Mollusca*: xvi, 144.

CORRECTION: Watson, 1920 [2 May], *Proceedings of the Malacological Society of London*, **14**(1): 24.

CHROMODORIDIDAE

LIST: (Opinion 1375, 1986) Bergh, 1892, *Malacologische Untersuchungen in: Reisen im Archipel der Philippinen von Dr. C. Semper, Theil, Wissenschaftliche Resultate*. Section 2, vol. 3, part 18, p. 1103.

CORRECTION: Bergh, 1891 [October], *Zoologische Jahrbücher (Abteilung für Systematik, Geographie und Biologie der Thiere)*, **6**: 137.

COMINELLINAE

LIST: (Opinion 479, 1957) P. Fischer, 1884, *Manuel de Conchyliologie*, **7**: 624.

CORRECTION: Gray, 1857 [9 May], *Guide to the systematic distribution of Mollusca in the British Museum*. Part I: 15.

CUTHONIDAE

LIST: (Opinion 773, 1966) Odhner, 1934, *British Antarctic (Terra Nova) Expedition 1910, Natural History Report, Zoology*. **7**(5): 278.

REMARKS: The name CUTHONIDAE was introduced without a description and was not available under Article 13a of the Code at the time of Opinion 773 [now Article 13.1]. It was first diagnosed by Odhner, 1939, *Det Kongelige Norske Videnskabers Selskabs, Skrifter*, **1939**(1): 53. The name CUTHONIDAE satisfies the conditions of Article 13.2.1 and is available from Odhner (1934).

HELICARIONIDAE

LIST: (Opinion 1678, 1992) Bourguignat, 1883, *Annales des Sciences Naturelles, (Zoologie)*. Art. 2, (6)**15**: 9.

CORRECTION: Bourguignat, 1877, *Bulletin de la Société des Sciences Physiques et Naturelles de Toulouse*, **3**: 64. A correction to Godwin-Austen, 1882, *Land and freshwater Mollusca of India*, Part 2: 65 was notified in *BZN*, **50**(4): 313 and published in the 2001 *Supplement to the Official Lists and Indexes*.

HELICELLINAE [based on *Helicella* Férussac, 1821]

LIST: (Opinion 431, 1956) Hesse, 1926, *Archiv für Molluskenkunde*, **58**(3):115. A correction to Ihering, 1909, *Verhandlungen der zoologisch-botanischen Gesellschaft in Wien*, **1909**: 429 was published in the 1987 *Official Lists and Indexes*.

HELICELLINAE (based on *Helicella* Lamarck, 1812, not an available name)

INDEX: (Opinion 431, 1956) Chenu, 1859, *Manuel de Conchyliologie*, **1**: 421.

CORRECTION: H. & A. Adams, 1855 [January], *The Genera of Recent Mollusca*, **2**: 112.

HYGROMIINAE

LIST: (Direction 27, 1955) Geyer, 1909, *Unsere Land- und Süßwasser-Mollusken*. (Ed. 2): 11.

CORRECTION: Tryon, 1866 [6 October], *American Journal of Conchology*, **2**(4): 306.

LAURIINAE

LIST: (Direction 27, 1955) Thiele, 1931, *Handbuch der systematischen Weichtierkunde*, **1**(2): 509.

CORRECTION: Steenberg, 1925 [18 June], *Videnskabelige Meddelelser fra Dansk Naturhistorisk Forening*, **80**: 201.

LYMNAEIDAE

LIST: (Opinion 495, 1957) Rafinesque, 1815, *Analyse de la Nature*: 144.

COMMENT: Lamarck, 1812, *Extrait du cours de zoologie*: 116 established the vernacular name 'les Lymnéens' which was subsequently latinized (as LYMNAEANA) by Children, 1823, *Quarterly Journal of Science, Literature & Arts*, **15**: 242. Although the name LYMNAEIDAE has generally been credited to Lamarck in the 19th century literature, current usage refers this family name to Rafinesque (e.g., Franc, 1968, p. 528; Starobogatov, 1970, p. 46; Tracey et al., 1993, p. 158; Giusti et al., 1995, p. 169). It may appear inconsistent to accept some of Lamarck's vernacular names (see, e.g., APLYSIIDAE and TRITONIIDAE herein, and many bivalve family-group names in current use) and reject others. However, names are to be evaluated individually on a case by case approach and on these grounds it seems justified to accept the author and date of LYMNAEIDAE as ruled by Opinion 495.

NARICIDAE

INDEX: (Opinion 1009, 1974) Récluz, 1846, ['1845'], *Magasin de Zoologie*, (2)7(9): 6.
 CORRECTION: The author and reference are correct, but the citation of the date suggests that the work was published in 1846 rather than in the nominal year, 1845. This does not appear to be correct. The folios containing Récluz' work are dated 'Octobre 1845' on the last printed line of the first page starting the folio, and a copy in the mollusc library of the Muséum national d'Histoire naturelle in Paris bears a manuscript note in the upper left corner of page 49: '1^{er} X^{bre}' [=1 October]. The Secretariat does not hold any information that justifies the date 1846 and the date 1845 should be accepted. NARICIDAE is a junior objective synonym of VANIKORIDAE Gray, 1840.

OTINIDAE

LIST: (Direction 27, 1955) Chenu, 1859, *Manuel de Conchyliologie*, 1: 479.
 CORRECTION: H. & A. Adams, 1855 [September], *The Genera of Recent Mollusca*, 2: 249.

PALUDINIDAE

INDEX: (Opinion 573, 1959) Gray, 1840, *Synopsis of the contents of the British Museum*. Ed. 42: 117.
 CORRECTION: Fitzinger, 1833, *Beiträge zur Landeskunde Oesterreich's unter der Enns*, 3: 109 (as 'Gruppe' Paludinoidea). First used as the vernacular 'Les Paludinides' by Risso, 1826, *Histoire Naturelle . . . de l'Europe Méridionale*, 4: 100, but there is no current usage to attribute the name to Risso. PALUDINIDAE is based on the name *Paludina* Ferussac, 1812 (a junior objective synonym of *Viviparus* Montfort, 1810).

PELTIDAE

INDEX: (Opinion 811, 1967) Winckworth, 1931, *Plymouth Marine Fauna*. (Ed. 2): 267.
 CORRECTION: Vayssièrre, 1885, *Annales du Musée d'Histoire naturelle de Marseille, Zoologie*, 2(3): 104.

PLANORBIDAE

LIST: (Direction 27, 1955) Gray, 1840, in Turton, *Manual of the land and fresh-water shells of the British Islands*. (Ed. 2): 256.
 CORRECTION: Rafinesque, 1815, *Analyse de la Nature*: 143. Original spelling (subfamily) PLANORBIA (of the family TROCHINIA).
 REMARKS: Rafinesque based the family-group name PLANORBIDAE on 'Planorbis Geof.'. This is *Planorbis* of Geoffroy (1767, p. 12), a work placed on the Official Index of Rejected and Invalid Works by Opinion 362. *Planorbis* was first made available by O.F. Müller (1774, p. 152), who refers explicitly (e.g., pp. 154, 157, 159, 160, etc.) to Geoffroy, so that the reference by Rafinesque to 'Planorbis Geof.' unambiguously denotes the taxon now attributed to Müller. The family PLANORBIDAE is attributed to Rafinesque, 1815 in many current publications, following H.B. Baker (1956, p. 133). By attributing PLANORBIDAE to Rafinesque, 1815, this name takes the same precedence as the name ANCYLIDAE Rafinesque, 1815 (placed on the Official List by Direction 41). Starobogatov (1967, p. 293) acted as First Reviser and gave relative precedence to the

name PLANORBIDAE over ANCYLIDAE Rafinesque, 1815, which he attributed to the subfamily ANCYLINAE within the PLANORBIDAE.

PURPURIDAE

LIST: (Opinion 886, 1969) Broderip, 1839, *Penny Cyclopaedia*, **14**: 321.

CORRECTION: Children, 1823, *Quarterly Journal of Science, Literature & the Arts*, **16**: 54 [original spelling PURPURIFERA, latinization of the vernacular 'les Purpuracées' of Lamarck, 1809, *Philosophie Zoologique*, **1**: 322].

Current usage. In Opinion 886 THAIDIDAE/INAE Jousseume, 1888 was given precedence over PURPURIDAE/INAE (there attributed to Broderip, 1839). Attributing the name PURPURIDAE to Lamarck (1809) would cause nomenclatural instability because PURPURIDAE would then have precedence over MURICIDAE Rafinesque, 1815. THAIDINAE is used for a subfamily within MURICIDAE Rafinesque, 1815.

REALIINAE

INDEX: (Opinion 973, 1971) Pfeiffer, 1858, *Monographia Pneumonopomorum Viventium*, suppl. **1**: 153.

CORRECTION: Pfeiffer, 1853 [12 February], *Catalogue of Phaneropneumona or Terrestrial Operculated Mollusca in the Collection of the British Museum*: 217 [original spelling REALIANA].

RETUSIDAE

LIST: (Opinion 568, 1959) Thiele, 1931, *Handbuch der systematischen Weichtierkunde*, **1**: 189 [sic, error for p. 389].

CORRECTION: Thiele, 1925 [before 10 November], *Deutsche Tiefsee-Expedition 1898–1899*, **17**(2): 234.

RUMINIDAE

LIST: (Direction 27, 1955) Thiele, 1931, *Handbuch der systematischen Weichtierkunde*, **1**(2): 554.

CORRECTION: Wenz, 1923 [5 June], *Fossilium Catalogus*, **I**, Pars 20: 875.

RUNCINIDAE

LIST: (Opinion 811, 1967) Gray, 1857, *Guide to the systematic distribution of Mollusca in the British Museum*. Part I: 204.

CORRECTION: H. & A. Adams, 1854 [October], *The Genera of Recent Mollusca*, **2**: 42.

SCHIZOSTOMIDAE

INDEX: (Opinion 1470, 1988) Eichwald, 1871, *Geognostica-paläontologische Bemerkungen, über die Halbinsel Mangischlak und die Aleutischen Inseln*: 119.

CORRECTION: Bronn, 1849, *Index Palaeontologicus*, **2**(B): 421 [original spelling SCHIZOSTOMICA].

STRUTHIOLARIINAE

LIST: (Opinion 479, 1957) P. Fischer, 1884, *Manuel de Conchyliologie*: 677.

CORRECTION: Gabb, 1868 [3 November], *American Journal of Conchology*, **4**(3): 147 [original spelling STRUTHIOLARINAE].

SUBULINIDAE

LIST: (Direction 27, 1955) Thiele, 1931, *Handbuch der systematischen Weichtierkunde*, **1**(2): 549.

CORRECTION: Fischer & Crosse, 1877, *Mission scientifique au Mexique et dans l'Amérique Centrale. Recherches Zoologiques* (7), **1**(6): 592.

THAIDIDAE

LIST: (Opinion 886, 1969) Suter, 1913, *Manual of the New Zealand Mollusca*: 420. A correction to Jousseume, 1888, *Mémoires de la Société Zoologique de France*, **1**: 179 [original spelling THAISIDAE] was published in the 1987 *Official Lists and Indexes*.

TRITONIIDAE

LIST: (Opinion 668, 1963) H. & A. Adams, 1858, *The Genera of Recent Mollusca*, **2**: 62.

CORRECTION: Lamarck, 1809, *Philosophie Zoologique*, **1**: 320 (as the vernacular 'les tritoniens', latinized as TRITONIANA by Children, 1823, *Quarterly Journal of Science, Literature & the Arts*, **15**: 222).

Current usage. TRITONIIDAE is attributed to Lamarck, 1809 by, e.g., Franc (1968, p. 873), Nordsieck (1972, p. 65), Ros (1975, p. 332), Schmekel & Portmann (1982, p. 141), McDonald (1983, p. 120), Hoisaeter (1986, p. 107), Bertsch & Mozqueira (1986, p. 47), Cervera et al. (1988, p. 38) and Rolan et al. (1991, p. 113); it is attributed to H. & A. Adams, 1858 by, e.g., Sabelli et al. (1992, p. 446) and Cattaneo-Vietti et al. (1990, p. 22); and to Menke, 1828 by, e.g., Abbott (1974, p. 368) and Rios (1985, p. 188). There is thus no single 'generally accepted' (in the sense of Art. 11.7.2) usage of the author and date of TRITONIIDAE. Attributing it to Lamarck appears to be the parsimonious option.

TURBINELLIDAE

LIST: (Opinion 489, 1957) Swainson, 1840, *A Treatise on Malacology*: 75.

CORRECTION: Swainson, 1835, *The elements of modern conchology*: 13, 20.

VALLONIIDAE

LIST: (Direction 27, 1955) Pilsbry, 1900, *Proceedings of the Academy of Natural Sciences of Philadelphia*, (1900): 564.

CORRECTION: Morse, 1864 [17 March], *Journal of the Portland Society of Natural History*, **1**: 5, 21 [original spelling (subfamily) VALLONINAE].

VERTIGINIDAE

LIST: (Direction 27, 1955) Stimpson, 1851, *Shells of New England*: 53.

CORRECTION: Fitzinger, 1833, *Beiträge zur Landeskunde Oesterreich's unter der Enns*, **3**: 109 (original spelling ('Gruppe') VERTIGINOIDEA).

VITREINAE

LIST: (Direction 27, 1955) Thiele, 1931, *Handbuch der systematischen Weichtierkunde*, **1**(2): 587.

CORRECTION: H.B. Baker, 1930 [24 April], *The Nautilus*, **43**(4): 122.

XANCIDAE

INDEX: (Opinion 489, 1957) Woodring, 1928, *Carnegie Institution of Washington, Publication No. 385: 250.*

CORRECTION: Pilsbry, 1922 [4 January], *Proceedings of the Academy of Natural Sciences of Philadelphia*, **73**: 342.

XENOPHORIDAE

LIST: (Opinion 715, 1964) Philippi, 1853, *Handbuch der Conchyliologie und Malacozoologie*: 185.

CORRECTION: Troschel, 1852, *Archiv für Naturgeschichte*, **18**(2): 280 [original spelling XENOPHORACEA].

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References

- Abbott, R.T. 1974. *American Seashells*. 663 pp. Van Nostrand Reinhold, New York.
- Arakawa, K.Y. & Hoshino, T. 1982. *Molluscan fauna of the Seto inland sea, Japan*. 181 pp. Hiroshima Shell Club.
- Baker, H.B. 1956–1957. Family names in Pulmonata. *The Nautilus*, **69**(4): 128–139. Addenda and errata: *The Nautilus*, **70**(1): 34 [1956]; **70**(4): 141–142 [1957].
- Bertsch, H. & Mozqueira Osuna, A. 1986. A new species of *Tritonia* (Nudibranchia) from southern California and Baja California. *The Nautilus*, **100**(2): 46–49.
- Blainville, H.M.D. de. 1816. Troisième mémoire sur les animaux mollusques; sur l'ordre des Polybranches. *Bulletin des Sciences par la Société Philomatique de Paris, Zoologie*, [29 avril 1815]: 51–53.
- Blainville, H.M.D. de. 1825. *Manuel de malacologie et de conchyliologie*. viii, 664 pp. Levrault, Paris.
- Cattaneo, R. & Barletta, G. 1984. Elenco preliminare dei molluschi opistobranchi viventi nel Mediterraneo (Sacoglossa, Pleurobranchomorpha, Acochlidiaacea, Aplysiomorpha, Nudibranchia). *Bollettino Malacologico*, **20**(9–12): 195–218.
- Cattaneo-Vietti, R., Chemello, R. & Giannuzzi-Savelli, R. 1990. *Atlas of Mediterranean nudibranchs*. 264 pp. La Conchiglia, Roma.
- Cervera, J.L., Templado, J., Garcia-Gomez, J.C., Ballesteros, M., Ortea, J.A., Garcia, F.J., Ros, J. & Luque, A.A. 1988. Catalogo actualizado y comentado de los Opisthobranchios (Mollusca Gastropoda) de la Peninsula Ibérica, Baleares y Canarias, con algunas referencias a Ceuta y la isla de Alborán. *Iberus*, suppl. **1**: 1–83.
- Cuvier, G. 1810. Mémoire sur les Acères, ou Gastéropodes sans tentacules apparens. *Annales du Muséum d'Histoire naturelle*, **16**: 1–18, 1 pl.
- Franc, A. 1968. Sous-classe des Pulmonés (pp. 325–607) and Sous-classe des Opisthobranches (pp. 608–893) in Grassé, P.-P. (Ed.) *Traité de Zoologie*, tome 5, fascicule 3. 1083 pp. Masson, Paris.
- Fukuda, H. 1992. *A review of the molluscan fauna of Yamaguchi prefecture, western Japan*. 99, xxvi pp., 50 pls. Yamaguchi Museum.
- Geoffroy, E.L. 1767. *Traité sommaire des coquilles, tant fluviatiles que terrestres, qui se trouvent aux environs de Paris*. 143 pp. Musier, Paris.

- Giusti, F., Manganelli, G. & Schembri, P.J.** 1995. The non-marine molluscs of the Maltese Islands. *Museo Regionale di Scienze Naturali [Torino], Monografie*, **15**: 1–607.
- Hoiseater, T.** 1986. An annotated check-list of marine molluscs of the Norwegian coast and adjacent waters. *Sarsia*, **71**: 73–145.
- Latreille, P.A.** 1825. *Familles naturelles du Règne animal exposées succinctement et dans un ordre analytique, avec l'indication de leurs genres*. 570 pp. Baillièrre, Paris.
- Mazzarelli, G.** 1891. Intorno all'apparato riproduttore di alcuni Tectibranchi. *Zoologischer Anzeiger*, **14**: 233–243.
- McDonald, G.R.** 1983. A review of the nudibranchs of the California coast. *Malacologia*, **24**(1–2): 114–276.
- Melville, R.V. & Smith, J.D.D.** (Eds.). 1987. *Official Lists and Indexes of Names and Works in Zoology*. 366 pp. International Trust for Zoological Nomenclature, London.
- Menke, C.T.** 1828. *Synopsis methodica molluscorum generum omnium et specierum earum quae in museo Menkeano adservantur*. xii, 91 pp. Pyramonti.
- Menke, C.T.** 1830. *Synopsis methodica molluscorum generum omnium et specierum earum quae in museo Menkeano adservantur*. . . . xvi, 169 pp. Pyramonti.
- Müller, O.F.** 1774. *Vermium terrestrium et fluviatilium*. . . . Vol. 2. 214 pp. Havniae et Lipsiae [Copenhagen and Leipzig].
- Nordsieck, F.** 1972. *Die europäischen Meeresschnecken (Opisthobranchia mit Pyramidellidae; Rissoacea)*. 327 pp. Gustav Fischer, Stuttgart.
- Ortea, J. & Martinez, E.** 1990. Moluscos opistobranquios de Cabo Verde: Anaspidea (Aplysiomorpha). *Publicações Ocasionais da Sociedade Portuguesa de Malacologia*, **15**: 17–42.
- Rafinesque, C.S.** 1815. *Analyse de la Nature, ou tableau de l'univers et des corps organisés*. 224 pp. Palermo.
- Rios, E.C.** 1985. *Seashells of Brazil*. 329 pp., 102 pls. Museu Oceanografico, Rio Grande.
- Rolan, E., Rolan-Alvarez, E. & Ortea, J.** 1991. Sobre la captura en Galicia (NO de España) de *Tritonia hombergi* Cuvier, 1803 y *Babakina anadoni* (Ortea, 1979) comb. nov. (Mollusca: Nudibranchia). *Iberus*, **10**(1): 113–117.
- Ros, J.** 1975. Opistobranquios (Gastropoda: Euthyneura) del litoral ibérico. *Investigacion Pesquera*, **39**(2): 269–372.
- Sabelli, B., Giannuzzi-Savelli, R. & Bedulli, D.** 1992. *Catalogo annotato dei molluschi marini del Mediterraneo*. Vol. 2, pp. 346–499. Libreria Naturalistica Bolognese, Bologna.
- Schmekel, L. & Portmann, A.** 1982. *Opisthobranchia des Mittelmeeres. Nudibranchia und Saccoglossa*. Fauna e Flora del Golfo di Napoli, 40. 410 pp. Springer, Berlin.
- Smith, J.D.D.** (Ed.). 2001. *Official Lists and Indexes of Names and Works in Zoology — Supplement 1986–2000*. 136 pp. International Trust for Zoological Nomenclature, London.
- Starobogatov, Ya.I.** 1967. K postroeniyu sistemy presnovodnykh legochnykh molluskov. [On the systematization of freshwater pulmonate molluscs.] *Trudy Zoologicheskogo Instituta Akademii Nauk SSSR*, **42**: 280–303.
- Starobogatov, Ya.I.** 1970. *Fauna molluskov i zoogeograficheskoe rajonirovanie kontinental'nykh vodoemov zemnogo shara [The molluscan fauna and zoogeographical zoning of the continental water bodies of the world]*. 372 pp. Nauka, Leningrad.
- Tracey, S., Todd, J.A. & Erwin, D.H.** 1993. Mollusca: Gastropoda. Pp. 131–167 in Benton, M.J. (Ed.), *The Fossil Record 2*. 845 pp. Chapman & Hall, London.

Case 3185***Criconema* Hofmänner & Menzel, 1914 (Nematoda): proposed designation of *Eubostriechus guernei* Certes, 1899 as the type species**

P.A.A. Loof

Department of Nematology, Wageningen University, P.O. Box 8123, 6700 ES, Wageningen, The Netherlands (e-mail: Piet.Loof@nema.dpw.wau.nl)

I. Andrassy

Eötvös Loránd Tudományegyetem, Allatrendszertani és ökológiai Tanszék, Puskin utca 3, H-1088 Budapest, Hungary

M. Luc

6 rue Boutard, 92200 Neuilly-sur-Seine, France

D.J. Raski

1912 Alpine Place, Davis, California 95616, U.S.A.

M.R. Siddiqi

Commonwealth Institute of Parasitology, St. Albans, U.K.

W.M. Wouts

Landcare Research, Private Bag 92 170, Auckland, New Zealand

Abstract. The purpose of this application is to conserve the current usage of the name for the free-living soil nematode genus *Criconema* Hofmänner & Menzel, 1914. Most workers have accepted as a valid type species designation the tentative statement by Stiles & Hassall (1920) that *Eubostriechus guernei* Certes, 1889 'should probably be type' of *Criconema*, but this does not satisfy Article 67.5.3 of the Code. The valid designation is by Micoletzky (1925) who designated *Criconema morgense* Hofmänner & Menzel, 1914. Taylor (1936) designated this same species as type of his new genus *Criconemoides*, thereby making it a junior objective synonym of *Criconema*. It is proposed that current usage of *Criconema* and *Criconemoides* be maintained by designation of *Eubostriechus guernei* as type species of *Criconema*.

Keywords. Nomenclature; taxonomy; Nematoda; Tylenchida; CRICONEMATIDAE; *Criconema*; *Criconemoides*; *Criconema guernei*; *Criconemoides morgense*.

1. Hofmänner & Menzel (1914, p. 88) established the nominal genus *Criconema* (Nematoda, Tylenchida), with two species, *Eubostriechus guernei* Certes, 1889 (p. L.48) and a new species, *C. morgense* (p. 90). They did not designate either species as the type.

2. Stiles & Hassall (1920, p. 323) wrote in their Index-Catalogue under the heading *Criconema*: '(*guernei* should probably be type)'. This is not a valid type species designation under Article 67.5.3 of the Code, but has generally been taken as valid (by, for example, Mehta & Raski, 1971; Andrásy, 1979; Siddiqi, 1986; Raski & Luc, 1987).

3. Micoletzky (1925, p. 261) designated *Criconema morgense* Hofmänner & Menzel as the type species of *Criconema*, and this is the valid designation. In 1936 Taylor split *Criconema* in two and established *Criconemoides* (p. 406) with *Criconema morgense* as type species. To accept Micoletzky's earlier designation of *Criconema morgense* as type species of *Criconema* would make the generic name *Criconemoides* a junior objective synonym of *Criconema*. Transfer of the name *Criconema* to the genus currently known as *Criconemoides* would necessitate adopting a new name for *Criconema* as currently understood, in addition to totally confusing the literature of the last 60 years. The earliest synonym for *Criconema* is *Nothocriconema* De Grisse & Loof, 1965 (p. 588) for which the type species by original designation is *Hoplolaimus annulifer* De Man, 1921.

4. Continuation of the present usage of the names *Criconema* and *Criconemoides* is necessary to maintain stability in nomenclature, since both names are widely used, e.g. for *Criconema*: Gunhold, 1953; Choi & Jeong, 1995; Loof, Wouts & Yeates, 1997, and for *Criconemoides*: Raski, 1952; Raski & Golden, 1966; Loof & De Grisse, 1989. Numerous further references for both genera can be found in *Zoological Record*.

5. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to set aside all previous fixations of type species for *Criconema* Hofmänner & Menzel, 1914 and to designate *Eubostrichus guernei* Certes, 1889 as the type species;
- (2) to place on the Official List of Generic Names in Zoology the following names:
 - (a) *Criconema* Hofmänner & Menzel, 1914 (gender: neuter), type species by designation in (1) above *Eubostrichus guernei* Certes, 1889;
 - (b) *Criconemoides* Taylor, 1936 (gender: masculine), type species by original designation *Criconema morgense* Hofmänner & Menzel, 1914;
- (3) to place on the Official List of Specific Names in Zoology the following names:
 - (a) *guernei* Certes, 1889, as published in the binomen *Eubostrichus guernei* (specific name of the type species of *Criconema* Hofmänner & Menzel, 1914);
 - (b) *morgense* Hofmänner & Menzel, 1914, as published in the binomen *Criconema morgense* (specific name of the type species of *Criconemoides* Taylor, 1936).

References

- Andrásy, I. 1979. Revision of the subfamily Criconematinae Taylor, 1936 (Nematoda). *Opuscula Zoologica, Budapest*, **16**: 11–57.
- Certes, A. 1889. Protozoaires. Appendice: organismes divers appartenant à la faune microscopique de la Terre de Feu. Pp. L.45–50 in: *Mission Scientifique du Cap Horn (1882–1883)*, vol. 6, Zoologie. Gauthier-Villars, Paris.
- Choi, Y.E. & Jeong, H.C. 1995. Systematic study of Criconematoida from Korea, 2. Three unrecorded and five recorded species of Criconematidae from Korea. *Korean Journal of Applied Entomology*, **34**: 46–52.

- De Grisse, A. & Loof, P.A.A.** 1965. Revision of the genus *Criconemoides* (Nematoda). *Mededelingen van de Landbouwhogeschool en de Opzoekingsstations van de Staat te Gent*, **30**: 577–603.
- Gunhold, P.** 1953. Drei neue Nematoden aus den Ostalpen. *Zoologischer Anzeiger*, **150**: 35–38.
- Hofmänner, B. & Menzel, R.** 1914. Neue Arten freilebender Nematoden aus der Schweiz. *Zoologischer Anzeiger*, **44**: 80–91.
- Loof, P.A.A. & De Grisse, A.** 1989. Taxonomic and nomenclatorial observations on the genus *Criconemella* De Grisse & Loof, 1965 sensu Luc & Raski, 1981 (Criconematidae). *Mededelingen Faculteit Landbouwwetenschappen Rijksuniversiteit Gent*, **54**: 53–74.
- Loof, P.A.A., Wouts, W.M. & Yeates, G.W.** 1997. Criconematidae (Nematoda: Tylenchida) from the New Zealand region: genera *Mesocriconema*, *Criconema*, *Discocriconemella*, and *Hemicriconemoides*. *New Zealand Journal of Zoology*, **24**: 123–151.
- Mehta, U.K. & Raski, D.J.** 1971. Revision of the genus *Criconema* Hofmänner and Menzel, 1914 and other related genera (Criconematidae: Nematoda). *Indian Journal of Nematology*, **1**: 145–198.
- Micoletzky, H.** 1925. Die freilebenden Süßwasser- und Moornematoden Dänemarks. Nebst Anhang — Über Amöbosporidien und andere Parasiten bei freilebenden Nematoden. *Det Kongelige Danske videnskabernes Selskabs Skrifter, naturvidenskabelige og matematisk Afdeling*, (8)**10**: 57–310.
- Raski, D.J.** 1952. On the morphology of *Criconemoides* Taylor, 1936, with descriptions of six new species (Nematoda: Criconematidae). *Proceedings of the Helminthological Society of Washington*, **19**: 85–99.
- Raski, D.J. & Golden, A.M.** 1966. Studies on the genus *Criconemoides* Taylor, 1936 with descriptions of eleven new species and *Bakernema variabile* n. sp. (Criconematidae: Nematoda). *Nematologica*, **11**: 501–566.
- Raski, D.J. & Luc, M.** 1987. A reappraisal of Tylenchina (Nemata), 10. The superfamily Criconematoidea Taylor, 1936. *Revue de Nématologie*, **10**: 409–444.
- Siddiqi, M.R.** 1986. *Tylenchida, parasites of plants and insects*. 645 pp. Commonwealth Agricultural Bureaux, Farnham Royal, U.K.
- Stiles, C.W. & Hassall, A.** 1920. Index-catalogue of medical and veterinary zoology. Subjects: Roundworms (Nematoda, Gordiacea, and Acanthocephali) and the diseases they cause. *Hygienic Laboratory Bulletin*, no. 114. 886 pp. Washington.
- Taylor, A.L.** 1936. The genera and species of the Criconematinae, a sub-family of the Anguilluliniidae (Nematoda). *Transactions of the American Microscopical Society*, **55**: 391–421.

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).

Case 3192**BULIMINIDAE Kobelt, 1880 (Mollusca, Gastropoda): proposed emendation of spelling to BULIMINUSIDAE, so removing the homonymy with BULIMINIDAE Jones, 1875 (Rhizopoda, Foraminifera); and ENIDAE Woodward, 1903 (1880) (Gastropoda): proposed precedence over BULIMINUSIDAE Kobelt, 1880**

Bernhard Hausdorf

*Zoologisches Institut und Zoologisches Museum der Universität Hamburg,
Martin-Luther-King-Platz 3, D-20146 Hamburg, Germany
(e-mail: hausdorf@zoologie.uni-hamburg.de)*

Abstract. The family-group name BULIMINIDAE Kobelt, 1880 (Mollusca, Gastropoda) is a junior homonym of BULIMINIDAE Jones in Griffith & Henfrey, 1875 (Rhizopoda, Foraminifera). Both names are in use and refer, respectively, to a group of terrestrial snails with an Old World distribution, including both Palaeartic and Oriental taxa, and a cosmopolitan calcareous foraminiferan family found from the Cretaceous to Recent. It is proposed that the homonymy be removed by changing the spelling of the molluscan family-group name to give BULIMINUSIDAE by emending the stem of the name of the type genus *Buliminus* Beck, 1837, while leaving the foraminiferan name (based on *Bulimina* d'Orbigny, 1826) unchanged. It is also proposed that the molluscan family-group name ENIDAE Woodward, 1903 (based on *Ena* Turton, 1831, a senior subjective synonym of *Buliminus* Beck) be given precedence over BULIMINUSIDAE Kobelt, 1880. The names of *Ena* and of its type species, *Bulimus montanus* Draparnaud, 1801, were placed on Official Lists in Opinion 475 (July 1957).

Keywords. Nomenclature; taxonomy; Foraminifera; Gastropoda; *Bulimina*; *Buliminus*; *Ena*; BULIMINIDAE; BULIMINUSIDAE; ENIDAE.

1. Jones (in Griffith & Henfrey, 1875, p. 320) proposed the foraminiferan family-group name Buliminida, based on the type genus *Bulimina* d'Orbigny, 1826 (p. 269) which included 17 nominal species, among them *Bulimina marginata* d'Orbigny, 1826 (p. 269, pl. 12, figs. 10–12). Cushman (1911, p. 76) designated *B. marginata* as the type species of *Bulimina*. Under Articles 29.2 and 32.5.3 of the Code Buliminida is an incorrect original spelling which must be corrected to BULIMINIDAE. The well-known and well-used name BULIMINIDAE refers to a family of calcareous foraminiferans which are cosmopolitan, found at a variety of oceanic depths, and from the Cretaceous to Recent; a number of the included species are palaeoecological and biostratigraphic indicators which are useful in ocean drilling projects (see, for example, the recent publications by Loeblich & Tappan, 1964, p. 559; 1984, p. 43; 1987, p. 521; Mead, 1985, p. 228; Morkhoven, Berggren & Edwards, 1986; Haynes, 1990; Bolli, Beckmann & Saunders, 1994, pp. 136, 347; and Wyn Jones, 1994, p. 116).

2. Pfeiffer (1879, p. 282) introduced the molluscan family-group name *Buliminida*, based on the type genus *Bulimina* Ehrenberg, 1831 (p. [84]), the type species of which is *Bulimus labrosus* Olivier, 1804 (p. 30, pl. 31, figs. 10A and B) by monotypy. The family-group name is invalid, being based on a junior generic homonym (Article 39), but nevertheless it has been cited (as BULIMINIDAE) from Pfeiffer (1879) because his publication *Nomenclator Helicorum Viventium* is well known. The name BULIMINIDAE became available from Kobelt (1880) (see para. 3 below) but many authors were not aware of this because his *Illustriertes Conchylienbuch* is a rare work.

3. Kobelt (1880, p. 272) proposed the family-group name BULIMINIDAE, based on the type genus *Buliminus*. The name *Buliminus* was established by Beck (1837, p. 68) in the form '*Buliminus* (Ehrbg.) B.' and Beck cited *Bulimina* Ehrenberg in the synonymy. Thus, *Buliminus* is an emendation of *Bulimina* Ehrenberg, 1831 and has been adopted as a replacement for Ehrenberg's homonymous name. Under Article 67.8 the genus *Buliminus* Beck has the same type species as *Bulimina* Ehrenberg, 1831, namely *Bulimus labrosus* Olivier, 1804.

4. Woodward (1903, p. 309) replaced the name *Buliminus* Beck, 1837, which was in general usage at the time, by the senior subjective synonym *Ena* Turton, 1831 (p. 80), the type species of which is *Bulimus montanus* Draparnaud, 1801 (p. 65) by subsequent designation by Herrmannsen (1847, p. 421). Woodward believed *Buliminus* to be a junior homonym of *Bulimina* d'Orbigny, 1826 in the Foraminifera (para. 1 above) and that *Ena* was the oldest name available for the molluscan genus. The synonymy between *Ena* Turton and *Buliminus* Beck had been noted earlier, for example by Herrmannsen (1847, p. 421) and by Westerlund (1887, p. 22). Later, those names were used for separate taxa again (see, for example, Lindholm, 1925, p. 26; Thiele, 1931, p. 520 and Zilch, 1959, p. 183). The names of *Ena* and of its type species were placed on Official Lists in Opinion 475 (July 1957). Woodward (1903) also replaced the gastropod family-group name BULIMINIDAE Kobelt, 1880 with the new name ENIDAE Woodward, 1903. The family name ENIDAE was in prevailing usage for most of the last century and is still in use (see, for example, Emberton et al., 1990; Bank & Menkhorst, 1992; Gittenberger & Menkhorst, 1993; Manganelli et al., 1995; Schileyko, 1998). In these circumstances, under Article 40.2.1 of the Code ENIDAE takes precedence over BULIMINIDAE Kobelt, 1880 and is denoted as 'ENIDAE Woodward, 1903 (1880)'.

5. Schileyko (1978, 1984) revised the classification of the family ENIDAE Woodward and concluded that *Buliminus* Beck, 1837 and *Ena* Turton, 1831 belong to two different subfamilies, for which he used the names BULIMININAE Kobelt, 1880 and ENINAE Woodward, 1903, reinstating BULIMINIDAE Kobelt, 1880 for the family. Schileyko's restoration of Kobelt's name for the family was not in accord with Article 40a of the 1964 Code then in force because ENIDAE had become generally accepted. However, since that time the name BULIMINIDAE Kobelt, 1880 has been increasingly used as the name for the family (see, for example, Hausdorf, 1994, 1999; Alonso, Henríquez & Ibañez, 1995; Bank & Neubert, 1998). Although the classification of the family is still at issue, there is agreement that *Buliminus* and *Ena* are correctly placed in different subfamilies. Bank & Neubert (1998) and Schileyko (1998) included four to six genera in the subfamily BULIMININAE, for which no other name is available.

6. Schileyko (1998) tried to remove the homonymy between BULIMINIDAE Jones in Griffith & Henfrey, 1875 (Foraminifera) and BULIMINIDAE in Mollusca by proposing

a new gastropod name BULIMINUINAE based on *Buliminus* Beck, 1837. However, emendment by an individual scientist to the stem of a generic name on which is based an existing homonymous family-group name is not permitted under Article 55.3.1 of the Code. The name BULIMINUINAE is an unjustified emendation of BULIMINIDAE Kobelt, 1880 and has not been used by any other author.

7. In accord with Article 55.3 the case of homonymy between the gastropod family-group name BULIMINIDAE Kobelt, 1880 and the foraminiferan family-group name BULIMINIDAE Jones in Griffith & Henfrey, 1875 is referred to the Commission. I propose that the full generic name of *Buliminus* Beck, 1837 be used as the stem so that the gastropod family-group name based on it would become BULIMINUSIDAE Kobelt, 1880, thereby overcoming the homonymy. I think that it is preferable to use the entire generic name *Buliminus*- as the stem, rather than *Buliminu*- as proposed by Schileyko (1998), because it is usual to emend the stems of similar generic names in this way (see Recommendation 29A of the Code). The unusual emendment *Buliminu*-, resulting in BULIMINUIDAE and BULIMINUINAE Kobelt, 1880, might cause subsequent errors.

8. It is clear that Woodward (1903) replaced the name BULIMINIDAE Kobelt, 1880 by ENIDAE Woodward, 1903 because it was based on a generic name (*Buliminus* Beck, 1837) which he rejected as a supposed junior homonym and a junior synonym. I propose that the family-group name ENIDAE Woodward, 1903 (1880), which was in prevailing usage for most of the last century and is in continuing use, be conserved by giving it precedence over BULIMINIDAE Kobelt, 1880 (emended to BULIMINUSIDAE).

9. I have discussed this application with several colleagues who work on molluscs (R. Bank, P. Bouchet, G. Falkner, E. Gittenberger, F. Giusti and P. Mordan) and they have agreed with the proposals. I hope that the proposals now find general acceptance.

10. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to rule that:
 - (a) for the purposes of Article 29 of the Code the stem of the generic name *Buliminus* Beck, 1837 (Gastropoda) is BULIMINUS-;
 - (b) the family-group name ENIDAE Woodward, 1903 (1880) and other family-group names based on *Ena* Turton, 1831 are to be given precedence over BULIMINUSIDAE Kobelt, 1880 and other family-group names based on *Buliminus* Beck, 1837 whenever their type genera are placed in the same family-group taxon (Gastropoda);
- (2) to place the following names on the Official List of Generic Names in Zoology:
 - (a) *Bulimina* d'Orbigny, 1826 (gender: feminine), type species by subsequent designation by Cushman (1911) *Bulimina marginata* d'Orbigny, 1826 (Foraminifera);
 - (b) *Buliminus* Beck, 1837 (gender: masculine), type species by monotypy of the replaced nominal genus *Bulimina* Ehrenberg, 1831, *Bulimus labrosus* Olivier, 1804 (Gastropoda);
- (3) to place the following names on the Official List of Specific Names in Zoology:
 - (a) *marginata* d'Orbigny, 1826, as published in the binomen *Bulimina marginata* (specific name of the type species of *Bulimina* d'Orbigny, 1826) (Foraminifera);

- (b) *labrosus* Olivier, 1804, as published in the binomen *Bulimus labrosus* (specific name of the type species of *Buliminus* Beck, 1837) (Gastropoda);
- (4) to place the following names on the Official List of Family-Group Names in Zoology:
- (a) BULIMINIDAE Jones in Griffith & Henfrey, 1875, type genus *Bulimina* d'Orbigny, 1826 (Foraminifera);
- (b) ENIDAE Woodward, 1903 (1880) (type genus *Ena* Turton, 1831) with the endorsement that it and other family-group names based on *Ena* are to be given precedence over BULIMINUSIDAE Kobelt, 1880 (type genus *Buliminus* Beck, 1837) and other family-group names based on *Buliminus* whenever their type genera are placed in the same family-group taxon (Gastropoda);
- (c) BULIMINUSIDAE Kobelt, 1880 (spelling emended by the ruling in (1)(a) above) (type genus *Buliminus* Beck, 1837) with the endorsement that it and other family-group names based on *Buliminus* are not to be given priority over ENIDAE Woodward, 1903 (1880) (type genus *Ena* Turton, 1831) and other family-group names based on *Ena* whenever their type genera are placed in the same family-group taxon (Gastropoda);
- (5) to place on the Official Index of Rejected and Invalid Generic Names in Zoology the name *Bulimina* Ehrenberg, 1831 (a junior homonym of *Bulimina* d'Orbigny, 1826) (Gastropoda);
- (6) to place the following names on the Official Index of Rejected and Invalid Family-Group Names in Zoology:
- (a) BULIMINIDAE Pfeiffer, 1879 (based on the junior generic homonym *Bulimina* Ehrenberg, 1831 and a junior homonym of BULIMINIDAE Jones in Griffith & Henfrey, 1875);
- (b) BULIMINIDAE Kobelt, 1880 (spelling emended to BULIMINUSIDAE in (1)(a) above) (Gastropoda);
- (c) BULIMINUINAE Schileyko, 1998 (an unjustified emendation and junior objective synonym of BULIMINUSIDAE Kobelt, 1880) (Gastropoda).

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References

- Alonso, M.R., Henríquez, F. & Ibañez, M. 1995. Revision of the species group *Napaeus variatus* (Gastropoda, Pulmonata, Buliminidae) from the Canary Islands, with description of five new species. *Zoologica Scripta*, **24**(4): 303–320.
- Bank, R.A. & Menkhorst, H.P.M.G. 1992. Notizen zur Familie Enidae, 4. Revision der griechischen Arten der Gattungen *Ena*, *Zebrina*, *Napaeopsis* und *Turanena* (Gastropoda Pulmonata: Pupilloidea). *Basteria*, **56**: 105–158.
- Bank, R.A. & Neubert, E. 1998. Notes on Buliminidae, 5. On the systematic position of Arabian Buliminidae (Gastropoda Pulmonata), with the description of a new genus. *Basteria*, **61**(4–6): 73–84.
- Beck, H.H. 1837. *Index Molluscorum praesentis aevi musei principis augustissimi Christiani Frederici*. Pp. 1–100. Hafniae.
- Bolli, H.M., Beckmann, J.-P. & Saunders, J.B. 1994. *Benthic foraminiferal biostratigraphy of the south Caribbean region*. xi, 408 pp. Cambridge University Press, Cambridge.
- Cushman, J.A. 1911. A monograph of the Foraminifera of the North Pacific Ocean. Part II. Textulariidae. *Bulletin of the United States National Museum*, **71**(2): 1–108.

- Draparnaud, J.P.R.** 1801. *Tableau des mollusques terrestres et fluviatiles de la France*. 116 pp. Renaud, Montpellier & Paris.
- Ehrenberg, C.G.** 1831. *Symbolae physicae seu icones et descriptiones animalium evertibratorum sepositis insectis, quae ex itineribus per Africam Borealem et Asiam Occidentalem...*, 1. Pars zoologica. Animalia Evertebrata. Animalia Mollusca. 46 pp., 2 pls. Mittler, Berlin.
- Emberton, K.C., Kuncio, G.S., Davis, G.M., Phillips, S.M., Monderewicz, K.M. & Guo, Y.H.** 1990. Comparison of Recent classifications of stylommatophoran land-snail families, and evaluation of large-Ribosomal-RNA sequencing for their phylogenetics. *Malacologia*, **31**(2): 327–352.
- Gittenberger, E. & Menkhorst, H.P.M.G.** 1993. Die türkischen Enidae: die Gattung *Turanena* Lindholm (Pulmonata: Pupillacea). *Archiv für Molluskenkunde*, **122**: 71–87.
- Hausdorf, B.** 1994. Additive typogenesis in *Thoanteus* (Gastropoda: Buliminidae). *Zoological Journal of the Linnean Society*, **112**(3): 353–361.
- Hausdorf, B.** 1999. A new genus of the Buliminidae from Turkey (Gastropoda: Stylommatophora). *Journal of Natural History*, **33**(1): 149–154.
- Haynes, J.R.** 1990. The classification of the Foraminifera — a review of historical and philosophical perspectives. *Palaeontology*, **33**(3): 503–528.
- Herrmannsen, A.N.** 1847. *Indicis generum malacozoorum primordia*, vol. 1, parts 3–6. Pp. 233–637. Fischer, Cassellis.
- Jones, R.** 1875. Foraminifera. Pp. 316–320 in Griffith, J.W. & Henfrey, A., *The micrographic dictionary*, Ed. 3, vol. 1. xli, 845 pp. van Voorst, London.
- Kobelt, W.** 1880. *Illustriertes Conchylienbuch*, vol. 2. Pp. 145–392, pls. 51–112. Bauer & Raspe, Nürnberg.
- Lindholm, W.A.** 1925. Beitrag zur Systematik und Nomenklatur der Familie Enidae (Buliminidae). *Archiv für Molluskenkunde*, **57**: 23–41.
- Loeblich, A.R. & Tappan, H.** 1964. Sarcodina, chiefly 'Thecamoebians' and Foraminiferida. Pp. 511–900 in Moore, R.C. (Ed.), *Treatise on invertebrate paleontology*, part C. Protista, vol. 2, part 2. University of Kansas Press, Kansas.
- Loeblich, A.R. & Tappan, H.** 1984. Suprageneric classification of the Foraminiferida (Protozoa). *Micropaleontology*, **30**(1): 1–70.
- Loeblich, A.R. & Tappan, H.** 1987. *Foraminiferal genera and their classification*. x, 970, viii, 1059 pp. Von Nostrand Reinhold, New York.
- Manganelli, G., Bodon, M., Favilli, L. & Giusti, F.** 1995. Gastropoda Pulmonata. In: Minelli, A., Ruffo, S. & La Posta, S. (Eds), *Checklist delle specie della fauna italiana*, fasc. 16. 60 pp. Calderini, Bologna.
- Mead, G.A.** 1985. Recent benthic foraminifera in the Polar Front region of the southwest Atlantic. *Micropaleontology*, **31**(3): 221–248.
- Morkhoven, F.P.C.M., Berggren, W.A. & Edwards, A.S.** 1986. Cenozoic cosmopolitan deep-water benthic foraminifera. *Bulletin des Centres de Recherches Exploration-Production Elf-Aquitaine. Memoire*, **11**: 1–421.
- Olivier, G.A.** 1804. *Voyage dans l'Empire Othoman, l'Egypte et la Perse, fait par ordre du Gouvernement, pendant les six premières années de la République*, vol. 4. Atlas, livraison 2. vii pp., pl. 18–32. Agasse, Paris.
- Orbigny, A.D. d'.** 1826. Tableau méthodique de la classe des Céphalopodes. *Annales des Sciences Naturelles*, **7**: 245–314.
- Pfeiffer, L.** 1879. *Nomenclator Heliceorum viventium*. Pp. 1–384. Fischer, Cassellis.
- Schileyko, A.A.** 1978. Issledovanie tipovykh vidov nekotorykh taksonov rodovoy gruppy v semeystve Buliminidae (=Enidae) (Gastropoda). 3. Vidy Kryma i Kavkaza. Voprosy sistemy semeystva. *Zoologicheskij Zhurnal*, **57**(6): 834–850.
- Schileyko, A.A.** 1984. Nazemnye mollyuski podotryada Pupillina fauny SSSR (Gastropoda, Pulmonata, Geophila). In: *Fauna SSSR, Mollyuski*, vol. 3, part 3. 399 pp. Nauka, Leningrad.
- Schileyko, A.A.** 1998. Treatise on Recent terrestrial pulmonate molluscs. Part 2. *Ruthenica*, supplement 2: 129–261.
- Thiele, J.** 1931. *Handbuch der systematischen Weichtierkunde*, Band 1. Pp. 1–778. Fischer, Jena.

- Turton, W.** 1831. *A manual of the land and fresh-water shells of the British Islands*. viii, 150 pp., 10 pls. London.
- Westerlund, C.A.** 1887. *Fauna der in der Paläarktischen Region ... lebenden Binnenconchylien*, Teil 3 (Gen. *Buliminus*, *Sesteria*, *Pupa*, *Stenogyra* und *Cionella*). 183, 15, 26 pp. Friedländer, Berlin.
- Woodward, B.B.** 1903. Note on the generic name *Buliminus*. *Proceedings of the Malacological Society of London*, 5(5): 309–310.
- Wyn Jones, R.** 1994. *The Challenger Foraminifera*. 149 pp. Oxford Science Publications, Oxford University Press, Oxford; The Natural History Museum, London.
- Zilch, A.** 1959. *Handbuch der Paläozoologie*, Band 6 (Gastropoda), Teil 2 (Euthyneura), Lieferung 1. Pp.1–200. Borntraeger, Berlin.

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Case 2983***Achatinellastrum* Pfeiffer, 1854 and ACHATINELLIDAE Gulick, 1873 (Mollusca, Gastropoda): proposed conservation**

Robert H. Cowie

Center for Conservation Research and Training, University of Hawaii, Honolulu, Hawaii 96822, U.S.A. (e-mail: cowie@hawaii.edu)

Neal L. Evenhuis

Bishop Museum, 1525 Bernice Street, Honolulu, Hawaii 96817-2704, U.S.A. (e-mail: neale@bishopmuseum.org)

Hawaii Biological Survey contribution no. 2001-004

Abstract. The purpose of this application is to conserve the generic name *Achatinellastrum* Pfeiffer, 1854 for a terrestrial snail from Oahu, one of the Hawaiian islands, together with the family-group name ACHATINELLIDAE Gulick, 1873. These names are threatened by the unused senior subjective synonyms *Helicteres* Beck, 1837 and HELICTERINAE Pease, 1870 (based on *Helicter* Pease, 1862, a junior objective synonym of *Helicteres*) and it is proposed that *Helicteres* and *Helicter* be suppressed. The application is submitted under Article 23.9.3 of the Code.

Keywords. Nomenclature; taxonomy; Gastropoda; ACHATINELLIDAE; *Achatinella*; *Achatinellastrum*; tree snails; Hawaii.

1. The genera *Achatinella* Swainson, 1828 and *Achatinellastrum* Pfeiffer, 1854 and the family ACHATINELLIDAE Gulick, 1873 are widely known, particularly because of the publicity that conservation of Pacific island tree snail species has received. The senior synonym *Helicteres* Beck, 1837 has remained unused since 1847, and HELICTERINAE Pease, 1870 has not appeared since publication, but the conditions of Article 23.9.1.2 are not met for conservation of the names *Achatinellastrum* and ACHATINELLIDAE under the Code. The application is submitted under Article 23.9.3.

2. The name 'Helicteres' was first proposed by Férussac (1821, p. 56 quarto/p. 60 folio) for a division of his subgenus *Cochlogena* of the genus *Helix*, based on nine taxonomic species of Hawaiian land snails, only two of which had available names by reference to illustrations in vol. 11 of Chemnitz's (1795) *Systematisches Conchylien-Cabinet*. As is evident from Férussac's formation of names of similar levels of infrageneric groupings in his 1821 work, 'Helicteres' was written in the nominative plural and is therefore not an available name. Menke (1830, p. 25), essentially copying Férussac's (1821) classification and names, also used the name 'Helicteres' in the nominative plural. The first author to make available the name *Helicteres* was Beck (1837, p. 51) who used it for a subgenus of *Bulimus* and included a number of species of Hawaiian land snails, among them *Helix vulpina* Férussac, 1824 (pl. 68, figs. 13 and 14; text, p. 477, 1825). All the nominal taxa that Beck listed in *Helicteres* are currently included in the families ACHATINELLIDAE Gulick, 1873 (p. 89) and AMASTRIDAE Pilsbry, 1910 (see Cowie, Evenhuis & Christensen, 1995). Herrmannsen (1847, p. 515) designated *Helix vulpina* as the type species of *Helicteres* Beck.

3. Swainson (1828, p. 83) introduced the name *Achatinella* for *Monodonta seminigra* Lamarck, 1822 (p. 37), six new nominal species and one variety. These are all land snails from the Hawaiian island of Oahu. Swainson (1828, p. 83) designated *M. seminigra* as the type species of the genus. Subsequently Lamarck's name has been treated as a junior synonym of *Helix apexfulva* Dixon, 1789 (p. 354, plate opposite p. 355, fig. 1, two views), described from the Hawaiian Islands (see, for example, Pilsbry & Cooke, 1914, pp. 318, 320; Welch, 1942, p. 176; and Cowie et al., 1995, pp. 37, 46).

4. Pfeiffer (1854, p. 133) proposed *Achatinellastrum* as a subgenus of *Achatinella*, with 44 included nominal species, among them *Achatinella producta* Reeve, 1850 (*Achatinella*, pl. 2, species 13). Pilsbry & Cooke (1914, p. 181) designated *A. producta* as the type species of *Achatinellastrum*.

5. *Helix vulpina* Férussac, 1824, the type species of *Helicteres* Beck, 1837, is currently placed in the subgenus *Achatinellastrum* Pfeiffer, 1854 in the family ACHATINELLIDAE (see Cowie et al., 1995), rendering the name *Achatinellastrum* a junior subjective synonym of *Helicteres*.

6. The name *Helicter* was introduced by Pease (1862, p. 6) for Férussac's 'Helicteres'. It was treated as an incorrect subsequent spelling of 'Helicteres' by Cowie et al. (1995, p. 48) but, since Pease (1862) noted the change in spelling, it should correctly be considered an unjustified emendation, and thus a junior objective synonym, of *Helicteres* Beck, 1837. 'Helicterella' Gulick (1873b, p. 497) is a nomen nudum. The names *Helicteres* Beck, 1837 and *Helicter* Pease, 1862 have usually been treated as synonyms of *Achatinella* (see, for example, Pilsbry in Gwatkin, Suter & Pilsbry, 1895, pp. 237, 238; Pilsbry & Cooke, 1913, p. 117; 1914, p. 274; Thiele, 1931, p. 499; Zilch, 1959, p. 134; Vaught, 1989, p. 79), but if *Achatinella* is considered to be distinct from *Achatinellastrum*, which is the case in all these works, then the names *Helicteres* and *Helicter* are synonyms of *Achatinellastrum*.

7. Acceptance of the priority of the name *Helicteres* Beck, 1837 over *Achatinellastrum* Pfeiffer, 1854 would overturn accustomed usage. Pease (1862, p. 6; 1870, p. 644) advocated priority of 'Helicteres Férussac, 1821' over *Achatinella* Swainson, 1828, considering Férussac's name to be available and the two names to be synonyms. In his (1862) publication Pease changed *Helicteres* to *Helicter* (para. 6 above). Herrmannsen (1847, p. 515) and Gray (1847, p. 178) also considered *Helicteres* to be available from Férussac (1821), with *Achatinella* Swainson as a junior synonym, although Gray acknowledged that the different type species, *Achatinellastrum vulpina* (Férussac, 1824) and *Achatinella seminigra* (Lamarck, 1822), at some future time might be shown to belong to distinct genera (or subgenera) (see Gray, 1847, p. 130). No other authors have used *Helicteres* as a valid name. All subsequent authors have used *Achatinella* and/or *Achatinellastrum*, in some cases giving explicit reasons for doing so. For example, Gulick (1873a, p. 90) noted that *Helicteres* was 'preoccupied as the name of a genus in the vegetable kingdom. We might hesitate to reject it if it had been in general use for many years; but no good reason exists for reviving an objectionable name which has long been rejected', and Pilsbry in Gwatkin, Suter & Pilsbry, 1895 (pp. 237–238) recorded *Helicter* Pease as a synonym of *Achatinella* and that 'there is no reasonable excuse for reviving Férussac's term *Helicteres*, for it was not intended as a generic or sub-generic name by Férussac, and is improper in form. Its use would open the door to an endless series of vagaries in nomenclature, as any one who examines Férussac's original publication may see'.

The *Manual of Conchology* (Pilsbry & Cooke, 1912–1914) was the last work to revise the genus *Achatinellastrum* and remains the standard publication that has been followed until the present. In it (p. 117), *Helicteres* Beck and *Helicter* Pease are listed as synonyms of *Achatinella* and (p. 180) no synonyms are listed under *Achatinellastrum*. In addition to the publications cited in this application, a list of recent representative works in which the name *Achatinellastrum* has been used includes Welch (1958), Zilch (1962), Christensen (1985), Thiele (1992) and the U.S. Fish and Wildlife Service (1993).

8. The family-group name HELICTERINAE Pease, 1870 (p. 645), based on *Helicter* Pease, 1862, predates ACHATINELLINAE Gulick, 1873 (ref. 1873a, p. 89), based on *Achatinella* Swainson, 1828 (see also Baker, 1956, p. 132). However, no works subsequent to its original proposal have used HELICTERINAE. In addition to the above list of works relating to the usage of generic names, all of which use Gulick's family-group name, publications that have used the name ACHATINELLIDAE include popular works, text books, endangered species lists and scientific papers not only in systematics but in ecology, conservation, evolutionary biology and archaeology (see, for example, the recent works of Boss, 1982; Christensen & Kirch, 1986; Hadfield, 1986; Abbot, 1989 and Cowie, 1996, 2001). A representative list of a further 21 publications that have used ACHATINELLIDAE in the last 20 years is held by the Commission Secretariat). The family ACHATINELLIDAE is endemic to islands of the Pacific, where it has radiated spectacularly (see Cooke & Kondo, 1960). The sub-family ACHATINELLINAE, composed entirely of tree snails, is endemic to the Hawaiian Islands. The genus *Achatinella*, with *Achatinellastrum* as one of three subgenera, is endemic to the island of Oahu. On this island it has speciated dramatically and developed immense variation in shell colour and banding patterns that have long attracted the attention of evolutionary biologists (see, for example, Gulick, 1905 and Wright, 1978). Members of the ACHATINELLINAE are under severe threat of extinction through the impact of human activities (see Hadfield, 1986). Twenty-four species of *Achatinella* (those considered possibly still extant) and 23 other species of ACHATINELLIDAE are listed as threatened in the 1996 *IUCN Red List of Threatened Animals* (Baillie & Groombridge, 1996, pp. 120–121); together with a further 52 achatinellid species and two subspecies at risk or extinct (pp. 188, 213, 238), and the entire genus *Achatinella* is included in the *U.S. List of Endangered and Threatened Wildlife and Plants*. Considerable confusion would ensue if the names *Helicteres* Beck, 1837 and HELICTERIDAE Pease, 1870 were resurrected. By rejecting *Helicteres* in favour of *Achatinellastrum* Pfeiffer, 1854 and suppressing the name *Helicter* Pease, 1862 not only would stability in the generic name be ensured but the usage of ACHATINELLIDAE would be fixed, ensuring stability also in the family-group name.

9. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to suppress the following names for the purposes of the Principle of Priority but not for those of the Principle of Homonymy:
 - (a) *Helicteres* Beck, 1837;
 - (b) *Helicter* Pease, 1862;
- (2) to place on the Official List of Generic Names in Zoology the name *Achatinellastrum* Pfeiffer, 1854 (gender: neuter), type species by subsequent designation by Pilsbry & Cooke (1914) *Achatinella producta* Reeve, 1850;

- (3) to place on the Official List of Specific Names in Zoology the name *producta* Reeve, 1850, as published in the binomen *Achatinella producta* (specific name of the type species of *Achatinellastrum* Pfeiffer, 1854);
- (4) to place on the Official List of Family-Group Names in Zoology the name ACHATINELLIDAE (type genus *Achatinella* Swainson, 1828);
- (5) to place on the Official Index of Rejected and Invalid Generic Names in Zoology the following names:
 - (a) *Helicteres* Beck, 1837, as suppressed in (1)(a) above;
 - (b) *Helicter* Pease, 1862, as suppressed in (1)(b) above;
- (6) to place on the Official Index of Rejected and Invalid Family-Group Names in Zoology the name HELICTERINAE Pease, 1870 (invalid because the name of the type genus has been suppressed in (1)(b) above).

References

- Abbott, R.T.** 1989. *Compendium of landshells*. vii, [i], 240 pp. American Malacologists, Inc., Melbourne, Florida.
- Baillie, J. & Groombridge, B.** (Eds.). 1996. *1996 IUCN Red List of Threatened Animals*. 70, 368, 10 pp. IUCN, Gland, Switzerland & Cambridge, U.K.
- Baker, H.B.** 1956. Family names in Pulmonata. *The Nautilus*, **69**(4): 128–139.
- Beck, H.** 1837. *Index Molluscorum . . .*, part 1. Pp. 1–100. Author, Hafnia.
- Boss, K.J.** 1982. Classification of Mollusca. Pp. 1092–1096 in Parker, S.P. (Ed.), *Synopsis and classification of living organisms*, vol. 2. McGraw–Hill, New York.
- Christensen, C.C.** 1985. Oahu tree snail. Genus *Achatinella* Swainson, 1828 in: *Endangered species information system species workbook*; part 1 (Species distribution); part 2 (Species biology). 79 pp. Office of Endangered Species, Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C.
- Christensen, C.C. & Kirch, P.V.** 1986. Nonmarine mollusks and ecological change at Barbers Point, O'ahu, Hawaii. *Bishop Museum Occasional Papers*, **26**: 52–80.
- Cooke, C.M., Jr. & Kondo, Y.** 1960. Revision of Tornatellinidae and Achatinellidae (Gastropoda, Pulmonata). *Bernice P. Bishop Museum Bulletin*, **221**: 1–303.
- Cowie, R.H.** 1996. Variation in species diversity and shell shape in Hawaiian land snails: in situ speciation and ecological relationships. *Evolution*, **49**(6): 1191–1202.
- Cowie, R.H.** 2001. Decline and homogenization of Pacific faunas: the land snails of American Samoa. *Biological Conservation*, **99**(2): 207–222.
- Cowie, R.H., Evenhuis, N.L. & Christensen, C.C.** 1995. Catalog of the native land and freshwater molluscs of the Hawaiian Islands. *Bishop Museum Bulletin in Zoology*, **3**: 1–248.
- Dixon, G.** 1789. Appendix 1 (Natural History). Pp. 353–360, 7 pls. in: *A voyage round the world; but more particularly to the north-west coast of America: performed in 1785, 1786, 1787 and 1788, in the King George and Queen Charlotte, Captains Portlock and Dixon*. xxix, [2], 360, 47 pp., 17 pls. Goulding, London.
- Férussac, A.E.J.P.J.F.d'A. de.** 1821. *Tableaux systématiques des animaux mollusques classés en familles naturelles . . .* Deuxième partie. *Tableaux particuliers des mollusques terrestres et fluviatiles, présentant pour chaque famille les genres et espèces qui la composent. Tableau systématique de la famille des Limaçons, Cochleae*. 114 pp. Baillièrre, Paris.
- Férussac, A.E.J.P.J.F.d'A. de.** 1824, 1825. Description des mollusques terrestres et fluviatiles. Pp. 462–496 in Quoy, J.R.C. & Gaimard, L.P. (Eds.), *Voyage autour du monde fait par ordre du Roi sur les corvettes de S.M. l'Uranie et la Physicienne pendant les années 1817, 1818, 1819 et 1820*. Zoologie. Atlas (96 pls.), 1824; text (pp. 329–616), 1825.
- Gray, J.E.** 1847. A list of the genera of Recent Mollusca, their synonyma and types. *Proceedings of the Zoological Society of London*, **15**: 129–219.
- Gulick, J.T.** 1873a. On the classification of the Achatinellinae. *Proceedings of the Zoological Society of London*, **1873**: 89–91.
- Gulick, J.T.** 1873b. On diversity of evolution under one set of external conditions. *Journal of the Linnean Society of London (Zoology)*, **11**: 496–505.

- Gulick, J.T.** 1905. Evolution, racial and habitudinal. *Carnegie Institution of Washington Publication*, **25**: 1–2691.
- Gwatkin, H.M., Suter, H. & Pilsbry, H.A.** 1895. Observations on the dentition of Achatinellidae. *Proceedings of the Academy of Natural Sciences of Philadelphia*, **1895**: 237–240.
- Hadfield, M.G.** 1986. Extinction in Hawaiian Achatinelline snails. *Malacologia*, **27**(1): 67–81.
- Herrmannsen, A.N.** 1847. *Indicus generum malacozoorum primordia*, vol. 1. Pp. 233–637. Fischer, Cassell.
- Lamarck, J.B.P.A. de M. de.** 1822. *Histoire naturelle des animaux sans vertèbres*, vol. 7. 711 pp. Verdière, Paris.
- Menke, C.T.** 1830. *Synopsis methodica molluscorum generum omnium et specierum earum . . .* Editio altera, auctior et emendatior. xvi, 168, [1] pp. Uslar, Pyrmont.
- Pease, W.H.** 1862. Descriptions of two new species of *Heliceter* (*Achatinella*, Swains.), from the Sandwich Islands, with a history of the genus. *Proceedings of the Zoological Society of London*, **1862**: 3–7.
- Pease, W.H.** 1870. On the classification of the Heliceterinae. *Proceedings of the Zoological Society of London*, **1869**: 644–652.
- Pfeiffer, L.** 1854. Skizze einer Monographie der Gattung *Achatinella* Swains. *Malakozoologische Blätter*, **1**: 112–144.
- Pilsbry, H.A. & Cooke, C.M., Jr.** 1913–1914. *Manual of conchology*, ser. 2 (Pulmonata), vol. 22 (Achatinellidae), part 87, pp. 113–176, pls. 27–39 (1913); part 88, pp. i–lviii, 177–428, pls. 40–63 (1914). Academy of Natural Sciences, Philadelphia.
- Reeve, L.A.** 1850. *Achatinella*. Monograph of the genus. *Conchologia Iconica: or, illustrations of the shells of molluscos animals*, vol. 6. Reeve & Banham, London.
- Swainson, W.** 1828. The characters of *Achatinella*, a new group of terrestrial shells, with descriptions of six species. *Quarterly Journal of Science, Literature, and Art*, **1828**: 81–86.
- Thiele, J.** 1929–1931. *Handbuch der systematischen Weichtierkunde*, vol. 1. 778 pp. Fischer, Jena.
- Thiele, J.** 1992. *Handbook of systematic malacology*, part 2 (Gastropoda: Opisthobranchia and Pulmonata). Pp. xiv, 627–1189. Smithsonian Institution Libraries, Washington. (English version of German original).
- U.S. Fish and Wildlife Service.** 1993. *Recovery plan for the O'ahu tree snails of the genus Achatinella*. 55 pp., appendices (pp. A1–A61). U.S. Fish and Wildlife Service, Portland, Oregon.
- Vaught, K.C.** 1989. *A classification of the living Mollusca*. xii, 195 pp. American Malacologists Inc., Melbourne, Florida.
- Welch, d'A.A.** 1942. Distribution and variation of the Hawaiian tree snail *Achatinella apexfulva* Dixon in the Koolau Range, Oahu. *Smithsonian Miscellaneous Collections*, **103**(1): 1–236.
- Welch, d'A.A.** 1958. Distribution and variation of the Hawaiian tree snail *Achatinella bulimoides* Swainson on the windward slope of the Koolau Range, Oahu. *Proceedings of the Academy of Natural Sciences of Philadelphia*, **110**: 123–211.
- Wright, S.** 1978. *Evolution and the genetics of populations*, vol. 4 (Variability within and among natural populations). x, 580 pp. University of Chicago Press, Chicago & London.
- Zilch, A.** 1959. *Handbuch der Paläozoologie*, Band 6 (Gastropoda). Teil 2 (Euthyneura). Lieferung 1. Pp. xii, 1–20. Borntraeger, Berlin.
- Zilch, A.** 1962. Die Typen und Typoide des Natur-Museums Senckenberg. 26: Mollusca. Achatinellacea. *Archiv für Molluskenkunde*, **91**(1–3): 77–94.

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).

Case 3153**HIPPODIDIIDAE Cox, 1969 (Mollusca, Bivalvia): proposed emendation of spelling to HIPPODIDIUMIDAE, so removing the homonymy with HIPPODIDIIDAE K lliker, 1853 (Cnidaria, Hydrozoa)**

Antonio C. Marques

Departamento de Zoologia, Instituto de Bioc ncias, Universidade de S o Paulo, CP 11461, 05422-970, S o Paulo, SP, Brazil
(e-mail: marques@ib.usp.br)

Luiz E. Anelli

Departamento de Geologia Sedimentar e Ambiental, Instituto de Geoci ncias, Universidade de S o Paulo, Rua do Lago, 562, 05508-900, S o Paulo, SP, Brazil (e-mail: anelli@usp.br)

Marcello G. Sim es

Departamento de Zoologia, Instituto de Bioc ncias, Universidade Estadual Paulista - Botucatu, CP 510, 18618-000 Botucatu, SP, Brazil
(e-mail: btsimoes@ibb.unesp.br)

Abstract. The family-group name HIPPODIDIIDAE COX, 1969 (Mollusca, Bivalvia) is a junior homonym of HIPPODIDIIDAE K lliker, 1853 (Cnidaria, Hydrozoa). Both names are currently in use and refer, respectively, to a monogeneric family of fossil bivalves from the Jurassic of northwestern Europe and the Triassic of East Africa, and a group of hydrozoans (Siphonophorae) of worldwide distribution. The senior homonym is much older and has been more widely used than the junior and it is proposed that the homonymy be removed by changing the spelling of the molluscan family-group name to HIPPODIDIUMIDAE by emending the stem of the name of the type genus *Hippodidium* J. Sowerby, 1819, while leaving the hydrozoan name (based on *Hippopodius* Quoy & Gaimard, 1827) unchanged.

Keywords. Nomenclature; taxonomy; Hydrozoa; Siphonophorae; Bivalvia; HIPPODIDIIDAE; HIPPODIDIUMIDAE; *Hippopodius*; *Hippopodium*; fossil bivalves; Jurassic; Triassic; Recent.

1. Quoy & Gaimard (1827, p. 172, pl. 4A, figs. 1-12) established the new genus and species *Hippopodius luteus* for a hydrozoan. Subsequently *H. luteus*, which is the type species of the genus *Hippopodius* by monotypy, was synonymised with *Gleba hippopus* Forssk al (1776, pl. 43, fig. E), originally by Chun (1897, p. 34) who treated *luteus* as the senior synonym, a mistake later corrected by Bigelow (1911, p. 208). K lliker (1853, p. 28) proposed the family HIPPODIDIIDAE based on *Hippopodius*, and also included the new genus *Vogtia* K lliker, 1853. The genus *Hippopodius* Quoy & Gaimard is monotypic, i.e. *Hippopodius hippopus* (Forssk al, 1776) is the single

species, and the genus *Vogtia* includes four species (see Kirkpatrick & Pugh, 1984, pp. 71–76, figs. 25–29).

2. Sowerby (1819, p. 91, pl. 250) established the new genus and species *Hippopodium ponderosum* for a fossil bivalve from the Lower Jurassic of Dorset, U.K. Cox (1965, p. 82) included in the genus a second species, *Epihippodium quenstedti* Dietrich, 1933 from the Triassic of Tanzania, and proposed the family HIPPODIDIIDAE based on *Hippopodium*. However, there was no description of the family and the name does not meet the requirements of Article 13.1 of the Code for availability. Vokes (1967, p. 199) included *Hippopodium* in the family MODIOMORPHIDAE Miller, 1877. Cox (1969, p. 582) made available the name HIPPODIDIIDAE by means of a lengthy description, and also doubtfully included in the family a Devonian species. Hallman (1981, p. 8) and Sepkoski (1982, p. 33), however, defined the family HIPPODIDIIDAE to include only Triassic (Norian) and Jurassic (Tithonian or Portlandian) bivalves. The family is currently known only by its type genus which has a discontinuous stratigraphic and geographic distribution.

3. Both the names HIPPODIDIIDAE K lliker, 1853 (Hydrozoa) and HIPPODIDIIDAE COX, 1969 (Bivalvia) are currently in use. K lliker's name, in addition to being much older than HIPPODIDIIDAE COX, has been used more frequently for the family of extant hydrozoans than has that of COX for the single genus of fossil bivalves. Recent publications using HIPPODIDIIDAE K lliker include Daniel (1985), Kirkpatrick & Pugh (1984), Pugh (1991), Pag s & Gili (1992) and Carr  & Carr  (1994); publications adopting HIPPODIDIIDAE COX include Morris (1978) and Skelton & Benton (1993, p. 259). To remove the homonymy between the two family-group names we propose that the bivalve name be emended to HIPPODIDIUMIDAE, while leaving the hydrozoan name unaltered.

4. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to rule that for the purposes of Article 29 of the Code the stem of the generic name *Hippopodium* J. Sowerby, 1819 (Bivalvia) is HIPPODIDIUM-;
- (2) to place on the Official List of Generic Names in Zoology the following names:
 - (a) *Hippopodius* Quoy & Gaimard, 1827 (gender: masculine), type species by monotypy *Hippopodius luteus* Quoy & Gaimard, 1827 (a junior subjective synonym of *Gleba hippopus* Forssk l, 1776) (Hydrozoa);
 - (b) *Hippopodium* J. Sowerby, 1819 (gender: neuter), type species by monotypy *Hippopodium ponderosum* J. Sowerby, 1819 (Bivalvia);
- (3) to place on the Official List of Specific Names in Zoology the following names:
 - (a) *hippopus* Forssk l, 1776, as published in the binomen *Gleba hippopus* (senior subjective synonym of *Hippopodius luteus* Quoy & Gaimard, 1827, the type species of *Hippopodius* Quoy & Gaimard, 1827) (Hydrozoa);
 - (b) *ponderosum* J. Sowerby, 1819, as published in the binomen *Hippopodium ponderosum* J. Sowerby, 1819 (specific name of the type species of *Hippopodium* J. Sowerby, 1819) (Bivalvia);
- (4) to place on the Official List of Family-Group Names in Zoology the following names:
 - (a) HIPPODIDIIDAE K lliker, 1853, type genus *Hippopodius* Quoy & Gaimard, 1827 (Hydrozoa);
 - (b) HIPPODIDIUMIDAE COX, 1969, type genus *Hippopodium* J. Sowerby, 1819 (spelling emended by the ruling in (1) above) (Bivalvia);

- (5) to place on the Official Index of Rejected and Invalid Family-Group Names in Zoology the name HIPPOPODIIDAE COX, 1969 (spelling emended to HIPPOPODIUMIDAE by the ruling in (1) above) (Bivalvia).

References

- Bigelow, H.W.** 1911. The Siphonophorae. *Memoirs of the Museum of Comparative Zoology at Harvard University*, **38**(2): 173–401.
- Carré, C. & Carré, D.** 1994. Ordre des siphonophores. Pp. 523–596 in Bouillon, J., Carré, C., Carré, D., Franc, A., Goy, J., Hernandez-Nicaise, M.-L., Tiffon, Y., van de Vyver, D. & Wade, M. (Eds.), *Traité de zoologie*, Tome 3, Fasc. 2 (Cnidaires et Ctenaires). Paris.
- Chun, C.** 1897. Die Siphonophoren der Plankton-Expedition. *Ergebnisse der Plankton-Expedition der Humboldt-Stiftung*, **2**: 1–126.
- Cox, L.R.** 1965. Jurassic Bivalvia and Gastropoda from Tanganyika and Kenya. *Bulletin of the British Museum (Natural History)*, Geology Series, Supplement **1**: 1–213.
- Cox, L.R.** 1969. Family HIPPOPODIIDAE. Pp. 582–583 in Moore, R.C. (Ed.), *Treatise on invertebrate paleontology*, part N, Mollusca 6, vol. 2 (Bivalvia). Geological Society of America & University of Kansas Press, Lawrence, Kansas.
- Daniel, R.** 1985. The fauna of India and the adjacent countries. Coelenterata: Hydrozoa Siphonophora. *Zoological Survey of India*, **1985**: 1–440.
- Dietrich, W.O.** 1933. Zur Stratigraphie und Palaeontologie der Tendaguruschichten. *Palaeontographica*, Supplement **7**(2)2: 1–86.
- Forsskål, P.** 1776. *Icones rerum naturalium quae in itinere Orientali depingi curavit P. Forsskål*. Post mortem auctoris ad regis mandatum. Edidit C. Niebuhr. 12 pp., 43 pls. Hauniae.
- Hallman, A.** 1981. The end-Triassic bivalve extinction event. *Palaeogeography, Palaeoclimatology, Palaeoecology*, **35**: 1–44.
- Kirkpatrick, P.A. & Pugh, P.R.** 1984. Siphonophores and velelids. *Synopses of the British Fauna* (N.S.), **29**: 1–154.
- Kölliker, A.** 1853. *Die Schwimmpolypen oder Siphonophoren von Messina*. 96 pp., 12 pls. Engelmann, Leipzig.
- Morris, N.J.** 1978. The infaunal descendants of the Cycloconchidae: an outline of the evolutionary history and taxonomy of the Heteroconchia, superfamilies Cycloconchacea to Chamacea. *Philosophical Transactions of the Royal Society of London* (B, Biological Sciences), **284**: 259–275.
- Pagès, F. & Gili, J.M.** 1992. Siphonophores (Cnidaria, Hydrozoa) of the Benguela Current (southeastern Atlantic). *Scientia Marina*, **56**(suppl. 1): 65–112.
- Pugh, P.R.** 1991. Co-occurrence of hippopodiid siphonophores and their potential prey. *Hydrobiologia*, **216–217**: 327–334.
- Quoy, J.R.C. & Gaimard, J.P.** 1827. Observations zoologiques faites à bord de l'*Astrolabe*, en Mai 1826, dans le détroit de Gibraltar (suite). *Annales des Sciences Naturelles*, **10**: 172–193.
- Sepkoski, J.J.** 1982. A compendium of fossil marine families. *Contributions in Biology and Geology, Milwaukee Public Museum*, **51**: 1–124.
- Skelton, P.M. & Benton, M.J.** 1993. Mollusca: Rostroconchia, Scaphopoda and Bivalvia. Pp. 237–263 in Benton, M.J. (Ed.), *The fossil record*, vol. 2. xvii, 845 pp. Chapman & Hall, London.
- Sowerby, J.** 1819. *The mineral conchology of Great Britain*, vol. 3, no. 44. Pp. 89–97, pls. 249–253. Meredith, London.
- Vokes, H.E.** 1967. Genera of the Bivalvia: a systematic and bibliographic catalogue. *Bulletin of American Paleontology*, **51**(232): 111–395.

Case 3189

Ammotrecha* Banks, 1900 and *Ammotrechula* Roewer, 1934 (Arachnida, Solifugae): proposed conservation by the designation of *Galeodes limbata* Lucas, 1835 as the type species of *Ammotrecha*; and *Eremobates* Banks, 1900 and *Eremorhax* Roewer, 1934: proposed conservation by the designation of *Galeodes pallipes* Say, 1823 as the type species of *Eremobates

Mark S. Harvey

Department of Terrestrial Invertebrates, Western Australian Museum, Francis Street, Perth, Western Australia 6000, Australia
(e-mail: mark.harvey@museum.wa.gov.au)

Abstract. One purpose of this application is to conserve the names *Ammotrecha* Banks, 1900 and *Ammotrechula* Roewer, 1934 (family AMMOTRECHIDAE) for two genera of solifuges (camel spiders or sun spiders) from Central America and Mexico. At present *Cleobis saltatrix* Simon, 1879 is the valid type species of both genera. It is proposed that *Galeodes limbata* Lucas, 1835 be confirmed as the type species of *Ammotrecha*, following the universal acceptance of this species as the type. It is also proposed that the names *Eremobates* Banks, 1900 and *Eremorhax* Roewer, 1934 (family EREMOBATIDAE) be conserved for two genera of solifuges from the southern United States and Mexico. *Datames formidabilis* Simon, 1879, which is currently included in *Eremorhax*, is the valid type species of *Eremobates*. It is proposed that *Galeodes pallipes* Say, 1823 be confirmed as the type species of *Eremobates* in accordance with the accustomed understanding of the genus.

Keywords. Nomenclature; taxonomy; Arachnida; Solifugae; Solpugida; AMMOTRECHIDAE; EREMOBATIDAE; *Ammotrecha*; *Ammotrechula*; *Eremobates*; *Eremorhax*; *Ammotrecha limbata*; *Ammotrechula saltatrix*; *Eremobates pallipes*; *Eremorhax formidabilis*; solifuges; solpugids; camel spiders; sun spiders; Central America; North America; Mexico.

1. This application concerns the current understanding of two pairs of solifuge generic names, *Ammotrecha* Banks, 1900 and *Ammotrechula* Roewer, 1934, and *Eremobates* Banks, 1900 and *Eremorhax* Roewer, 1934. For each pair the nomenclature would be upset by the recognition of type species designations made by Simon (1879) and, in the case of *Eremobates*, by a further designation by Pocock (1902). The status of each pair of names is considered in turn and Commission action is proposed to conserve the names in their accustomed usage.

A. *Ammotrecha* Banks, 1900 and *Ammotrechula* Roewer, 1934 (family AMMOTRECHIDAE)

2. The solifuge genus *Cleobis* was originally described by Simon (1879, p. 145; ref. 1879a) with five included species: *Cleobis saltatrix* Simon, 1879 (p. 146; ref. 1879a),

Galeodes limbata Lucas, 1835a (pl. 5 and text; ref. 1835a), *Galeodes cubae* Lucas, 1835b (ref. 1835b), *Solpuga gryllipes* Gervais, 1842 and *Galeodes morsicans* Gervais, 1849, but the last two species were only doubtfully included in the genus. Simon (1879a) did not designate a type species for *Cleobis* but, later that year in a note listing species of Solifugae in vol. 7 of his *Les arachnides de France*, Simon (1879b, p. 78) designated *C. saltatrix* Simon, 1879 from Mexico as the type species. Although this designation is clearly valid (Article 69.1 of the Code), it seems to have been overlooked by subsequent workers and has not been mentioned or challenged by later workers, including Pocock (1895) and Kraepelin (1899, 1901) in their synoptic reviews.

3. Banks (1900, p. 426) noted that *Cleobis* Simon, 1879 was a junior homonym of *Cleobis* Dana, 1847 (Crustacea) and proposed the replacement name *Ammotrecha* Banks, 1900 for the solifuge genus. *Ammotrecha* is the type genus of the family AMMOTRECHIDAE Roewer, 1934.

4. Pocock (1902, p. 64), apparently unaware of Simon's (1879) type species designation, designated *Galeodes limbata* Lucas, 1835 as the type of *Ammotrecha* (and hence of *Cleobis* Simon; Article 67.8 of the Code). Pocock (p. 66) regarded *C. saltatrix* Simon, 1879 as a junior synonym of *G. limbata*, based upon remarks made by Kraepelin (1901), and it is equally possible that he was aware of Simon's (1879) action and simply cited the senior synonym. *Cleobis saltatrix* was subsequently removed from synonymy and treated as a distinct species by Roewer (1934), who designated it as the type species of his new genus *Ammotrechula* Roewer, 1934 (p. 600, figs. 335e, 335i). Muma (1970) redescribed the female syntype of *C. saltatrix* (housed in the Muséum National d'Histoire Naturelle, Paris), which he found conformed to current diagnoses of *Ammotrechula*. Pocock's (1902) type species designation for *Ammotrecha* has been followed by all subsequent workers, including Roewer (1934, p. 596), Muma (1951, p. 123) and others. The syntypes (one male and one female) of *G. limbata* are possibly mislaid, or are unlabelled and hence unrecognizable as types amongst the collection of the Paris Museum; however, the identity of the taxon is not in doubt.

5. Of the other species included in *Cleobis* by Simon (1879, ref. 1879a), *Galeodes cubae* was designated the type species of *Ammotrechona* Roewer, 1934 by Roewer (1934), *Solpuga gryllipes* Gervais, 1842 was designated the type species of *Ammotrechinus* Roewer, 1934 by Roewer (1934), and *G. morsicans* Gervais, 1849 was transferred to *Pseudocleobis* Pocock, 1900 by Kraepelin (1901). The selection of any of these species as the type species of *Ammotrecha* would result in significant nomenclatural changes.

6. Under the Code, recognition of Simon's (1879) designation of *Cleobis saltatrix* as the type species of *Ammotrecha* Banks, 1900 would cause considerable nomenclatural changes; the name *Ammotrechula* Roewer, 1934 would be lost as a junior synonym of *Ammotrecha*, and *Ammotrechula saltatrix* and the other 13 species currently included in *Ammotrechula* would be known by the name *Ammotrecha*. This would leave the nine species currently included in *Ammotrecha* without a valid generic name, and a new name would be needed for them.

7. The names *Ammotrecha* and *Ammotrechula* have been used in many recent publications. A representative list of those not already cited includes Roewer (1954), Muma (1971, 1976, 1986, 1987) and Armas (1993) for *Ammotrecha*, and Muma (1976, 1987, 1989) and Armas (1993) for *Ammotrechula*. In the interests of nomenclatural

stability, I propose that Simon's (1879) type species designation for *Ammotrecha* be set aside and *Galeodes limbata* Lucas, 1835 be confirmed as the type species by subsequent designation by Pocock (1902). These actions will allow accustomed usages of both names *Ammotrecha* and *Ammotrechula* to continue unhindered.

B. *Eremobates* Banks, 1900 and *Eremorhax* Roewer, 1934 (family EREMOBATIDAE)

8. The solifuge genus *Datames* was established by Simon (1879, p. 133; ref. 1879a) for nine species of solifuges from the U.S.A. and Mexico, none of which was selected as the type species: *Datames formidabilis* Simon, 1879 (ref. 1879a), *Gluvia geniculata* C.L. Koch, 1842, *Galeodes pallipes* Say, 1823 (p. 3, footnote), *Datames sulfureus* Simon, 1879a and *Datames californicus* Simon, 1879a, and four doubtfully included species, *Gluvia praecox* C.L. Koch, 1842, *Gluvia cinerascens* C.L. Koch, 1842, *Gluvia gracilis* C.L. Koch, 1842 and *Gluvia formicarius* C.L. Koch, 1842. Later that year in a list of solifuge genera published (p. 78) in vol. 7 of *Les arachnides de France*, Simon (1879b) designated *Datames formidabilis* Simon, 1879a from Mexico as the type species of *Datames*.

9. Banks (1900, p. 426) noted that *Datames* Simon, 1879 was a junior homonym of *Datames* Stål, 1875 (Insecta) and proposed the replacement name *Eremobates* Banks, 1900 for the solifuge genus. *Eremobates* Banks is the type genus of EREMOBATINAE Kraepelin, 1901 (family SOLPUGIDAE), which was first elevated to family rank by Roewer (1934).

10. Apparently unaware of Simon's (1879b) type designation, Pocock (1902, p. 59) designated *Gluvia cinerascens* C.L. Koch, 1842 (p. 355) from Mexico as the type species of *Eremobates*, noting that Simon (1879a) had misidentified the male(s) but correctly identified the female(s) of *Datames pallipes* (Say, 1823). Roewer (1934, p. 555) listed *D. pallipes* as the type species of *Eremobates*, and placed *G. cinerascens* in a new genus. Roewer's (1934) type designation for *Eremobates* has been followed by other authors, including Muma (1951). Muma (1951, p. 72) synonymised *G. cinerascens* with *D. pallipes* which he later confirmed (Muma, 1970). The holotype of *G. cinerascens* is a male specimen (catalogue no. ZMB 188) in the Zoologisches Museum, Berlin, as recorded by Moritz & Fischer (1980, p. 140). Brookhart & Muma (1981, p. 292) designated a male specimen from Highway 205c, Byers, Arapahoe County, Colorado, U.S.A. and deposited in the American Museum of Natural History, New York, as the neotype of *D. pallipes*.

11. Muma (1951, p. 92) established the new species *Therobates bilobatus*, now placed in the genus *Eremochelis* Roewer, 1934, for specimens misidentified as *Datames pallipes* (Say) by Simon (1879a), Banks (1900), Kraepelin (1901) and Roewer (1934).

12. *Datames formidabilis* Simon, 1879 is currently included in the genus *Eremorhax* Roewer, 1934 (p. 553) with the type species *Datames magna* Hancock, 1888 (p. 107, figs. A, B, a-h) (Harvey, in press). Despite the confused history of the identity of many North American solifuge species described in the 19th century it is clear that, if Simon's (1879) designation of *D. formidabilis* as the type species of *Eremobates* Banks, 1900 is left unchallenged, then the name *Eremorhax* becomes a junior synonym of *Eremobates*, and all species currently included in *Eremorhax* would be known as *Eremobates*. In addition, all species currently included in *Eremobates* would take the next available name, *Eremoperna* Roewer,

1934, which is currently treated (see Muma, 1951, p. 51) as a junior synonym of *Eremobates*.

13. Both the names *Eremobates* and *Eremorhax* are in current usage. A representative list of publications includes Fichter (1940), Cloudsley-Thompson (1968, 1977), Brookhart (1972), Muma (1974a, 1974b, 1975a, 1975b, 1976, 1985, 1989), Brookhart & Muma (1981), Rowland & Reddell (1976) and Punzo (1998) for *Eremobates*, and Roewer (1952), Muma (1966a, 1966b, 1966c, 1967, 1974a, 1976, 1987), Rowland & Reddell (1976) and Punzo (1993, 1995, 1998) for *Eremorhax*. Therefore, in the interest of nomenclatural stability, I propose that the type designation for *Eremobates* Banks, 1900 made (under Article 67.8 of the Code) by Simon (1879b) be set aside, and that *Galeodes pallipes* Say, 1823 be confirmed as the type species following the designation by Roewer (1934). This will allow the accustomed usages of the names *Eremobates* and *Eremorhax* Roewer, 1934 to continue. Although preceded by type designations by Simon (1879b) and by Pocock (1902) and therefore invalid, Roewer's (1934) type designation was of a species originally included in *Datames* (= *Eremobates*) and it has been followed by subsequent authors.

14. The International Commission on Zoological Nomenclature is accordingly asked:
(1) to use its plenary power to set aside all previous fixations of type species for the following nominal genera:

(a) *Ammotrecha* Banks, 1900 (= *Cleobis* Simon, 1879) prior to the designation by Pocock (1902) of *Galeodes limbata* Lucas, 1835;

(b) *Eremobates* Banks, 1900 (= *Datames* Simon, 1879) prior to the designation by Roewer (1934) of *Galeodes pallipes* Say, 1823;

(2) to place on the Official List of Generic Names in Zoology the following names:

(a) *Ammotrecha* Banks, 1900 (gender: feminine), type species by subsequent designation by Pocock (1902) *Galeodes limbata* Lucas, 1835, as ruled in (1)(a) above;

(b) *Ammotrechula* Roewer, 1934 (gender: feminine), type species by original designation *Cleobis saltatrix* Simon, 1879;

(c) *Eremobates* Banks, 1900 (gender: masculine), type species by subsequent designation by Roewer (1934) *Galeodes pallipes* Say, 1823, as ruled in (1)(b) above;

(d) *Eremorhax* Roewer, 1934 (gender: masculine), type species by monotypy *Datames magna* Hancock, 1888;

(3) to place on the Official List of Specific Names in Zoology the following names:

(a) *limbata* Lucas, 1835, as published in the binomen *Galeodes limbata* (specific name of the type species of *Ammotrecha* Banks, 1900);

(b) *saltatrix* Simon, 1879, as published in the binomen *Cleobis saltatrix* (specific name of the type species of *Ammotrechula* Roewer, 1934);

(c) *pallipes* Say, 1823, as published in the binomen *Galeodes pallipes* and as defined by the neotype designated by Brookhart & Muma (1981) (specific name of the type species of *Eremobates* Banks, 1900);

(d) *magna* Hancock, 1888, as published in the binomen *Datames magna* (specific name of the type species of *Eremorhax* Roewer, 1934);

(4) to place on the Official Index of Rejected and Invalid Generic Names in Zoology the following names:

- (a) *Cleobis* Simon, 1879 (Solifugae) (a junior homonym of *Cleobis* Dana, 1847);
(b) *Datames* Simon, 1879 (Solifugae) (a junior homonym of *Datames* Stål, 1875).

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References

- Armas, L.F. de. 1993. Aracnidos de Nicaragua. 4. Nuevos solpugidos (Solpugida: Ammotrechidae). *Revista Nicaraguense de Entomología*, **26**: 39–56.
- Banks, N. 1900. Synopses of North-American invertebrates. IX. The scorpions, solpugids and pedipalpi. *American Naturalist*, **34**: 421–427.
- Brookhart, J.O. 1972. Solpugids (Arachnida) in Colorado. *Southwestern Naturalist*, **17**: 31–41.
- Brookhart, J.O. & Muma, M.H. 1981. The *pallipes* species-group of *Eremobates* Banks (Solpugida: Arachnida) in the United States. *Florida Entomologist*, **64**: 283–308.
- Cloudsley-Thompson, J.L. 1968. *Spiders, scorpions, centipedes and mites*. Pergamon Press, Oxford.
- Cloudsley-Thompson, J.L. 1977. Adaptational biology of Solifugae (Solpugida). *Bulletin of the British Arachnological Society*, **4**: 61–71.
- Fichter, E. 1940. Studies of North American Solpugida, I. The true identity of *Eremobates pallipes* (Say). *American Midland Naturalist*, **24**: 351–360.
- Hancock, J.L. 1888. Description of *Datames magna*. *Proceedings of the American Philosophical Society*, **25**: 107–110.
- Harvey, M.S. In press. Nomenclatural notes on Solifugae, Amblypygi, Uropygi and Araneae (Arachnida). *Records of the Western Australian Museum*.
- Koch, C.L. 1842. Systematische Uebersicht über die Familie der Galeoden. *Archiv für Naturgeschichte*, **8**: 350–356.
- Kraepelin, K. 1899. Zur Systematik der Solifugen. *Mitteilungen aus dem Naturhistorischen Museum in Hamburg*, **16**: 195–258.
- Kraepelin, K. 1901. Palpigradi und Solifugae. *Das Tierreich*, **12**: 1–159.
- Lucas, H. 1835a. Galéode. *Galeodes* Olivier. *Magasin de Zoologie*, **5**: Classe VIII, plate 5, text.
- Lucas, H. 1835b. Galéode. *Galeodes* Oliv. *Magasin de Zoologie*, **5**: Classe VIII, plate 11, text.
- Moritz, M. & Fischer, S.-C. 1980. Die Typen der Arachniden-Sammlung des Zoologischen Museums Berlin. II. Uropygi, Amblypygi, Schizomida, Ricinulei, Solifuga. *Mitteilung aus dem Zoologischen Museum in Berlin*, **56**: 137–154.
- Muma, M.H. 1951. The arachnid order Solpugida in the United States. *Bulletin of the American Museum of Natural History*, **97**: 35–141.
- Muma, M.H. 1966a. Burrowing habits of North American Solpugida (Arachnida). *Psyche*, Cambridge, **73**: 251–260.
- Muma, M.H. 1966b. Egg deposition and incubation for *Eremobates durangonus* with notes on the eggs of other species of Eremobatidae (Arachnida: Solpugida). *Florida Entomologist*, **49**: 23–31.
- Muma, M.H. 1966c. Feeding behavior of North American Solpugida (Arachnida). *Florida Entomologist*, **49**: 199–216.
- Muma, M.H. 1967. Basic behavior of North American Solpugida. *Florida Entomologist*, **50**: 115–123.
- Muma, M.H. 1970. A synoptic review of North American, Central American, and West Indian Solpugida (Arthropoda: Arachnida). *Arthropods of Florida and Neighboring Land Areas*, **5**: 1–62.
- Muma, M.H. 1971. The solpugids (Arachnida, Solpugida) of Chile, with descriptions of a new family, new genera, and new species. *American Museum Novitates*, **2476**: 1–23.

- Muma, M.H.** 1974a. An annotated list of solpugids (Arachnida) in New Mexico. *Bulletin of the New Mexico Academy of Science*, **15**(2): 13–16.
- Muma, M.H.** 1974b. Maturity and reproductive isolation of common solpugids in North American deserts. *Journal of Arachnology*, **2**: 5–10.
- Muma, M.H.** 1975a. Long term can trapping for population analyses of ground-surface, arid-land arachnids. *Florida Entomologist*, **58**: 257–270.
- Muma, M.H.** 1975b. Two vernal ground-surface arachnid populations in Tularosa Basin, New Mexico. *Southwestern Naturalist*, **20**: 55–67.
- Muma, M.H.** 1976. A review of solpugid families with an annotated list of western hemisphere solpugids. *Publication of the Office of Research, Western New Mexico University, Silver City*, **2**: 1–33.
- Muma, M.H.** 1985. A new, possibly diagnostic, character for Solpugida (Arachnida). *Novitates Arthropodae*, **2**(2): 1–5.
- Muma, M.H.** 1986. New species and records of Solpugida (Arachnida) from Mexico, Central America, and the West Indies. *Novitates Arthropodae*, **2**(3): 1–23.
- Muma, M.H.** 1987. *New species and records of Solpugida (Arachnida) from Mexico, Central America, and the West Indies*. Southwest Offset, Silver City.
- Muma, M.H.** 1989. *New species and records of Solpugida (Arachnida) from the United States*. Douglas Print Shop, Douglas.
- Pocock, R.I.** 1895. Notes on some of the Solifugae contained in the collection of the British Museum, with descriptions of new species. *Annals and Magazine of Natural History*, (6)**16**: 74–98.
- Pocock, R.I.** 1900. Some new or little-known Thelyphonidae and Solifugae. *Annals and Magazine of Natural History*, (7)**5**: 294–306.
- Pocock, R.I.** 1902. Arachnida: Scorpiones, Pedipalpi, and Solifugae. *Biologia Centrali-Americana*, **3**: 1–71.
- Punzo, F.** 1993. An analysis of free amino acids, neurotransmitters and enzymes in the nervous system of Solpugida (Arachnida). *Comparative Biochemistry and Physiology*, **106C**: 699–703.
- Punzo, F.** 1995. Feeding and prey preparation in the solpugid, *Eremorhax magnus* Hancock (Solpugida: Eremobatidae). *Pan-Pacific Entomologist*, **71**: 13–17.
- Punzo, F.** 1998. *The biology of camel-spiders (Arachnida, Solifugae)*. Kluwer Academic Publishers, Boston.
- Roewer, C.F.** 1934. Solifugae, Palpigradi. Pp. 481–723 in Bronn, H.G. (Ed.), *Klassen und Ordnungen des Tierreichs*, Band 5 (Arthropoda), Abt. 4 (Arachnoidea). Akademische Verlagsgesellschaft, Leipzig.
- Roewer, C.F.** 1952. Neotropische Arachnida Arthrogastra, zumeist aus Peru. *Senckenbergiana Biologica*, **33**: 37–58.
- Roewer, C.F.** 1954. Spinnentiere aus El Salvador, I. (Arachnoidea: Pedipalpi, Solifuga, Opiliones-Laniatores). *Senckenbergiana Biologica*, **35**: 57–73.
- Rowland, J.M. & Reddell, J.R.** 1976. Annotated checklist of the arachnid fauna of Texas (excluding Acarida and Araneida). *Occasional Papers of the Museum of the Texas Technical University*, **38**: 1–25.
- Say, T.** 1823. *Account of an expedition from Pittsburgh to the Rocky Mountains, performed in the years 1819 and '20, by order of the Hon. J.C. Calhoun, Sec'y of War: under the command of Major Stephen H. Long*, vol. 2. Carey & Lea, Philadelphia.
- Simon, E.** 1879a. Essai d'une classification des galéodes, remarques synonymiques et description d'espèces nouvelles ou mal connues. *Annales de la Société Entomologique de France*, (5)**9**: 93–154.
- Simon, E.** 1879b. Les ordres des chernetes, scorpiones et opiliones. Pp. 1–332 in: *Les arachnides de France*, vol. 7. Librairie Encyclopédique de Roret, Paris.

Case 3179***Halacarus* Gosse, 1855, *H. ctenopus* Gosse, 1855 and *Thalassarachna* Packard, 1871 (Arachnida, Acari): proposed conservation of usage of the names by the designation of a neotype for *H. ctenopus***

Ilse Bartsch

*Forschungsinstitut Senckenberg, clo DESY, Notkestrasse 31,
22607 Hamburg, Germany (e-mail: bartsch@meeresforschung.de)*

Abstract. The purpose of this application is to conserve the specific name of *Halacarus ctenopus* Gosse, 1855 in its accustomed usage. *H. ctenopus* is the type species of *Halacarus* Gosse, 1855, a widespread genus of microscopic marine mites. The name *Halacarus* has been used continuously for 146 years. However, the interpretation of the genus and *H. ctenopus* has been based on Lohmann (1893) who applied Gosse's name to a different species. Gosse's taxon is now placed in *Thalassarachna* Packard, 1871 under the name *T. basteri* (Johnston, 1836). It is proposed that a neotype of *H. ctenopus* be designated in the taxonomic sense of Lohmann (1893) in order to conserve usage of the names *Halacarus*, *H. ctenopus* and *Thalassarachna*.

Keywords. Nomenclature; taxonomy; Acari; HALACARIDAE; *Halacarus*; *Halacarus ctenopus*; *Thalassarachna*; *Thalassarachna basteri*; marine mites.

1. In 1855 Gosse introduced the name *Halacarus* for a genus of microscopic marine mites. He presented a short diagnosis and described two species, *H. rhodostigma* and *H. ctenopus*, both collected on the shores of Great Britain. The type species was not originally designated. Gosse (1855, pp. 28–29, pl. 3, figs. 6–10) described and figured *H. ctenopus* as a species with a body length of about 800 µm and a frontal spine projecting over the gnathosoma; the third palpal segment had a stout spur-like spine; the genua of the legs were shorter than the tibiae and telofemora and the tarsi ended with a pair of strongly pectinated claws. Gosse's material is not in the London Natural History Museum and is presumably not in existence.

2. Murray (1876, p. 205) based the nominal family HALACARIDAE on *Halacarus*. All the species mentioned in this application are considered to belong to this family, but as mentioned below their generic and specific names are a source of confusion.

3. Lohmann (1893) presented a detailed 'redescription' of what he considered to be *Halacarus ctenopus*. The description was based on material from algae taken off Bermuda; this material is in neither Kiel nor Hamburg, where Lohmann lived and worked, and must be presumed lost. He described a species with a length of 420 µm, a wide frontal spine, large gland pores and legs with genua which are longer than the tibiae and telofemora. Subsequent reference to *Halacarus ctenopus* (e.g. Lohmann, 1901; Viets, 1927b, 1936; André, 1946; Newell, 1947; Green & MacQuitty, 1987) is either directly based on the description presented by Lohmann (1893) or describes a species obviously conspecific with *Halacarus ctenopus* sensu

Lohmann (1893). This species is not conspecific or even congeneric with the species described by Gosse.

4. Lohmann (1907) split the genus *Halacarus* into two groups ('Artenkreise'). One of the groups, the 'Balticus-Gruppe', includes the species in which the genua are shorter than the tibiae and telofemora (i.e. *Halacarus* sensu Gosse, 1855). The other, the 'Ctenopus-Gruppe', was defined as having the segment four of legs I to IV as long as, or longer than, segments three and five. Following Lohmann, Viets (1927a) established the subgenera *H. (Halacarellus)*, designating as the type species *Halacarus balticus* Lohmann, 1889, and *H. (Halacarus)*, with the type species stated to be *H. ctenopus* Gosse, 1855. *Halacarus (Halacarus)* was defined as having long genua on legs I and II, as for *H. ctenopus* sensu Lohmann (1893) but not as originally described by Gosse (1855).

5. In the past half century, 49 new species have been referred to the genus *Halacarus* (sensu Lohmann, 1893); all have long genua on leg I. Of these 49 species, 48 are now treated as congeneric with *Halacarus ctenopus* sensu Lohmann (1893), but none with *H. ctenopus* as originally described by Gosse (1855). Examples of papers describing species are André (1946); Newell (1947, 1971, 1984); Sokolov (1952); Bartsch (1983; 1993a, b); Green & MacQuitty (1987). A list of the species published between 1947 and 1996 has been given to the Commission Secretariat.

6. *Halacarellus* Viets, 1927a was treated as a subjective synonym of *Thalassarachna* Packard, 1871 by Newell (1945). He considered the type species of *Thalassarachna (T. verrillii)* Packard, 1871, p. 108, by original designation) to be a synonym of *Acarus basteri* Johnston, 1836 (pp. 353–355, figs. 51 a, b) and recognized an affinity between it and *Halacarellus balticus*. I (Bartsch, 1997) disagreed with Newell (1945) and considered *Halacarellus balticus* not to be congeneric with *T. basteri*; accordingly, I reintroduced *Halacarellus* as a valid generic name.

7. Gosse (1855, pp. 28–29, pl. 3, figs. 6–10) based his description of *Halacarus ctenopus* on a single specimen collected at Weymouth, Dorset, U.K. As mentioned in para. 1 above the holotype is unknown, but the original figures are sufficient to recognise the species. The name *Thalassarachna basteri* (Johnston, 1836) has been consistently used for the species represented by Gosse's figures since Newell (1945).

8. Strict application of the Principle of Priority would require replacement of *ctenopus* Gosse, 1855 by *basteri* Johnston, 1836 and *Halacarus*, with *H. basteri* as the valid name of its type species, would displace *Thalassarachna*. New names for *Halacarus* as currently used and for *Halacarus ctenopus* sensu Lohmann would, therefore, also be required.

9. In accordance with Article 75.6 of the Code stability would be maintained by the designation of a neotype for *Halacarus ctenopus* Gosse, 1855 that is consistent with prevailing usage of the generic and specific names. Therefore, I propose a male of *Halacarus ctenopus* identified and described by Newell (1947, p. 83), No 44–211–27, United States National Museum of Natural History, (Collection I.M. Newell) from Soldier's Key, Biscayne Bay, Florida, U.S.A., as neotype of the nominal species *Halacarus ctenopus* Gosse, 1855; this specimen was collected from *Halimeda opuntia*, July 1st, 1944, coll. H.W. Baird,

10. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to set aside all previous type fixations for *Halacarus ctenopus* Gosse, 1855 and to designate USNM No. 44–211–27 referred to in para. 9 above as the neotype;
- (2) to place on the Official List of Generic Names in Zoology the following names:
 - (a) *Halacarus* Gosse, 1855 (gender: masculine), type species *Halacarus ctenopus* Gosse, 1855 by subsequent designation (Viets, 1927a);
 - (b) *Thalassarachna* Packard, 1871 (gender: feminine), type species *Thalassarachna verrillii* Packard, 1871 by original designation (a junior subjective synonym of *Acarus basteri* Johnston, 1836);
- (3) to place on the Official List of Specific Names in Zoology the following names:
 - (a) *ctenopus* Gosse, 1855, as published in the binomen *Halacarus ctenopus* Gosse, 1855 and as defined by the neotype designated in (1) above;
 - (b) *basteri* Johnston, 1836, as published in the binomen *Acarus basteri* Johnston, 1836 (senior subjective synonym of the specific name of *Thalassarachna verrillii* Packard, 1871, the type species of *Thalassarachna* Packard, 1871).

References

- André, M.** 1946. Halacariens marins. *Faune de France*, vol. 46. 152 pp. Lechevalier, Paris.
- Bartsch, I.** 1983. Vorschlag zur Neugliederung des Systems der Halacaridae (Acari). *Zoologische Jahrbücher (Abteilung für Systematik, Ökologie und Geographie der Tiere)*, **110**: 179–200.
- Bartsch, I.** 1993a. Synopsis of the Antarctic Halacaroidea (Acari), vol 4. Pp. 1–176 in Wägele, J.W. & Sieg, J. (Eds.), *Synopses of the Antarctic Benthos*. Koeltz, Koenigstein.
- Bartsch, I.** 1993b. *Halacarus* (Halacariden, Acari) from south-western Australia, vol. 1. Pp. 45–71 in Wells, F.E., Walker, D.I., Kirkman, H. & Lethridge, R. (Eds.), *The Marine Flora and Fauna of Rottnest Island, Western Australia*. Western Australian Museum, Perth.
- Bartsch, I.** 1997. *Thalassarachna* and *Halacarellus* (Halacaridae: Acari): two separate genera. *Journal of Natural History*, **31**: 1223–1236.
- Gosse, P.H.** 1855. Notes on some new or little-known marine animals. *Annals and Magazine of Natural History*, (2)**16**: 27–36.
- Green, J. & MacQuitty, M.** 1987. Halacarid mites (Arachnida: Acari). *Synopses of the British Fauna*. New series, no. 36. vii, 178 pp. Brill/Backhuys, Leiden.
- Johnston, G.** 1836. Illustrations in British zoology. *Magazine of Natural History*, **9**(63): 353–357.
- Lohmann, H.** 1889. Die Unterfamilie der Halacaridae Murr. und die Meeresmilben der Ostsee. *Zoologische Jahrbücher (Abteilung für Systematik, Ökologie und Geographie der Tiere)*, **4**: 269–408.
- Lohmann, H.** 1893. Die Halacarinen der Plankton-Expedition. *Ergebnisse der Plankton-Expedition der Humboldt-Stiftung*, **2**: 11–95.
- Lohmann, H.** 1901. Halacaridae. *Das Tierreich*, **13**: 273–305.
- Lohmann, H.** 1907. Die Meeresmilben der Deutschen Südpolar-Expedition, 1901–1903. *Deutsche Südpolar Expedition, 1901–1903*, **9**: 361–413.
- Murray, A.** 1876. *Economic Entomology. Aptera*. South Kensington Museum Science Handbooks. Branch Museum, Bethnal Green. xiii, 433 pp. Chapman & Hall, London.
- Newell, I.M.** 1945. The status of *Thalassarachna verrillii* Packard, 1871, *Halacarus* Gosse, 1855, and *Copidognathus* Trouessart, 1888 (Acari, Halacaridae). *Transactions of the American Microscopical Society*, **64**: 58–62.
- Newell, I.M.** 1947. A systematic and ecological study of Halacaridae of eastern North America. *Bulletin of the Bingham Oceanographic Collection*, **10**(3): 1–232.

- Newell, I.M.** 1971. Halacaridae (Acari) collected during cruise 17 of the R/V *Anton Bruun*, in the southeastern Pacific Ocean. *Anton Bruun Report*, **8**: 1–58.
- Newell, I.M.** 1984. Antarctic Halacaroida. *Antarctic Research Series*, **40**: 1–284.
- Packard, A.C.** 1871. On insects inhabiting salt water. *American Journal of Science*, **3**: 100–110.
- Sokolov, I.I.** 1952. Vodjanye klesci. II. Halacariae. Vol. 5, pt. 5. 201 pp. *Fauna SSSR*, Izdatelstvo Akademii Nauk SSSR, Moskva, Leningrad.
- Viets, K.** 1927a. Die Halacaridae der Nordsee. *Zeitschrift für wissenschaftliche Zoologie*, **130**: 83–173.
- Viets, K.** 1927b. Halacaridae. *Tierwelt der Nord- und Ostsee*, vol. 11. 72 pp. Akademische Verlagsgesellschaft, Leipzig.
- Viets, K.** 1936. Die Meeresmilben, Halacaridae Murray, 1876. *Tierwelt Deutschlands*, **31/32**: 516–559.
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Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).

Case 3155

MACROTHERMITINAE Kemner, 1934 (Insecta, Isoptera): proposed precedence over ACANTHOTERMITINAE Sjöstedt, 1926

Michael S. Engel

*Division of Entomology, Snow Hall, 1460 Jayhawk Boulevard,
University of Kansas, Lawrence, Kansas 66045–7523, U.S.A.*

Kumar Krishna

*Division of Invertebrate Zoology, American Museum of Natural History,
Central Park West at 79th Street, New York, N.Y. 10024–5192, U.S.A.*

Abstract. The purpose of this application is to conserve the usage of the family-group name MACROTHERMITINAE Kemner, 1934 for a well known and important group of fungus-growing termites. The senior subfamily name ACANTHOTERMITINAE Sjöstedt, 1926 (type genus *Acanthotermes* Sjöstedt, 1900) has been used only once since its establishment 75 years ago, and then for a tribe within MACROTHERMITINAE not including *Macrotermes*. The junior name MACROTHERMITINAE (type genus *Macrotermes* Holmgren, 1909) has been used universally for this group of termites. It is proposed that the family-group name MACROTHERMITINAE be given precedence over ACANTHOTERMITINAE.

Keywords. Nomenclature; taxonomy; Isoptera; TERMITIDAE; MACROTHERMITINAE; ACANTHOTERMITINAE; *Macrotermes*; *Acanthotermes*; termites.

1. Sjöstedt (1900a, p. 278) established the nominal genus *Acanthotermes* in a short sentence appended to the description of some African termites. This paper was published on 23 January 1900, although it bears the date 1899; he included three species, *Termes spiniger* Sjöstedt, 1900, *T. militaris* Hagen, 1858 and *T. acanthothorax* Sjöstedt, 1898 (p. 204). In a paper published on 11 April 1900 Sjöstedt (1900b, p. 54) provided a complete description of *Acanthotermes*. Twenty-six years later he (Sjöstedt, 1926, p. 60) designated *Termes acanthothorax* as the type species and in the same paper (pp. 8, 60) established the name ACANTHOTERMITINAE based on his genus *Acanthotermes*, as a subfamily of TERMITIDAE Latreille, 1802.

2. In a general work on the systematics of termites Holmgren (1909, p. 193) established the nominal genus *Macrotermes* as a subgenus of *Termes* Linnaeus, 1758 to accommodate the 'lilljeborgii[sic] gruppe' of species. The name *Macrotermes* is available by indication (Article 12.2.5 of the Code); no type species was explicitly designated but is taken to be *Termes lilljeborgi* Sjöstedt, 1896 (p. 269) by monotypy since *T. lilljeborgi* is an available specific name that can be unambiguously assigned to a nominal species-group taxon and no other nominal species was cited in conjunction with *Macrotermes*. Kemner (1934, p. 69) established the subfamily name MACROTHERMITINAE, also within TERMITIDAE, based on *Macrotermes* Holmgren.

3. Hare (1937, pp. 461–462, pl. IIIa), in a phylogenetic study of the termites based on the mandibular morphology of the soldier caste, brought *Acanthotermes* and *Macrotermes*, along with four other fungus-growing genera, into a single subfamily for which she used Kemner's name MACROTERMITINAE; she made no reference to the senior name ACANTHOTERMITINAE.

4. Snyder (1949, p. 202), in a general taxonomic catalog of termites, used MACROTERMITINAE and listed ACANTHOTERMITINAE as a synonym. He cited the dates of both names but ignored the seniority of ACANTHOTERMITINAE; the Principle of Priority was in fact not extended to family-group names until the 1961 edition of the Code.

5. Weidner (1956, pp. 66–67), without altering the included genera of the subfamily, recognized three tribes and used the name ACANTHOTERMITINI for one which did not include the genus *Macrotermes*. No author between Sjöstedt (1926) and Weidner (1956), nor any author since Weidner, has used a family-group name based on *Acanthotermes*. After the phylogenetic study by Hare (1937) and since the taxonomic catalogue by Snyder (1949), the name MACROTERMITINAE has been applied ubiquitously to *Macrotermes*, *Acanthotermes* and their relatives. All major treatments of termites in the last 50 years have used the name MACROTERMITINAE to refer to the group of fungus-growing termites related to *Macrotermes* and *Acanthotermes* (e.g., Bouillon, 1970; Chhotani, 1997; Krishna, 1969, 1970; Pearce, 1997; Ruelle, 1970; Sands, 1998; Tho, 1992; Weidner, 1970). The macrotermitine termites are important pests and significant recyclers in African and Asian ecosystems. A voluminous biological literature exists under the name MACROTERMITINAE (e.g., Darlington, 1991; Eggleton et al., 1995; Emerson, 1955; Grassé, 1949, 1986; Grassé & Noirot, 1951; Harris, 1961; Johnson, Thomas, Wood & Swift, 1981; Noirot, 1970; Pearce, 1997; Roonwal, 1970; Sieber & Leuthold, 1981; Thakur, 1981; Weidner & Riou, 1986; Wood, Bednarzik & Aden, 1987).

6. To use the name ACANTHOTERMITINAE in place of its junior synonym MACROTERMITINAE would bring about a change in name for a commonly encountered and important group of termites that are universally referred to in biological and taxonomic studies under the junior synonym. We are presently completing a new taxonomic catalogue of all living and fossil termites and propose that family-group names based on *Macrotermes* be given precedence over those based on *Acanthotermes* in the interest of stability: The family-group name based on *Acanthotermes* would remain available for any entomologist who may in the future consider the two genera involved to belong to different family-group taxa.

7. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to rule that the family-group name MACROTERMITINAE Kemner, 1934 and other family-group names based on *Macrotermes* Holmgren, 1909 are to be given precedence over ACANTHOTERMITINAE Sjöstedt, 1926 and other family-group names based on *Acanthotermes* Sjöstedt, 1900 whenever their type genera are placed in the same family-group taxon;
- (2) to place on the Official List of Generic Names in Zoology the following names:
 - (a) *Macrotermes* Holmgren, 1909 (gender: masculine), type species by monotypy *Termes lilljeborgi* Sjöstedt, 1896;
 - (b) *Acanthotermes* Sjöstedt, 1900 (gender: masculine), type species by subsequent designation by Sjöstedt (1926) *Termes acanthothorax* Sjöstedt, 1898;

- (3) to place on the Official List of Specific Names in Zoology the following names:
- (a) *lilljeborgi* Sjöstedt, 1896, as published in the binomen *Termes lilljeborgi* (specific name of the type species of *Macrotermes* Holmgren, 1909);
 - (b) *acanthothorax* Sjöstedt, 1898, as published in the binomen *Termes acanthothorax* (specific name of the type species of *Acanthotermes* Sjöstedt, 1900);
- (4) to place on the Official List of Family-Group Names in Zoology the following names:
- (a) MACROTERMITINAE Kemner, 1934 (type genus *Macrotermes* Holmgren, 1909), with the endorsement that it and other family-group names based on *Macrotermes* are to be given precedence over ACANTHOTERMITINAE Sjöstedt, 1926 and other family-group names based on *Acanthotermes* Sjöstedt, 1900 whenever their type genera are placed in the same family-group taxon;
 - (b) ACANTHOTERMITINAE Sjöstedt, 1926 (type genus *Acanthotermes* Sjöstedt, 1900), with the endorsement that it and other family-group names based on *Acanthotermes* are not to be given priority over MACROTERMITINAE Kemner, 1934 and other family-group names based on *Macrotermes* Holmgren, 1909 whenever their type genera are placed in the same family-group taxon.

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References

- Bouillon, A. 1970. Termites of the Ethiopian region. Pp. 154–280 in Krishna, K. & Weesner, F.M. (Eds.), *Biology of termites*, vol. 2. Academic Press, New York.
- Chhotani, O.B. 1997. *Fauna of India: Isoptera (termites)*, vol. 2. xx, 800 pp. Zoological Survey of India, Calcutta.
- Darlington, J.P.E.C. 1991. Turnover in the populations within mature nests of the termite *Macrotermes michaelsoni* in Kenya. *Insectes Sociaux*, **38**: 251–262.
- Eggleton, P., Bignell, D.E., Sands, W.A., Waite, B., Wood, T.G. & Lawton, J.H. 1995. The species richness of termites (Isoptera) under differing levels of forest disturbance in the Mbalmayo Forest Reserve, southern Cameroon. *Journal of Tropical Ecology*, **11**: 85–98.
- Emerson, A.E. 1955. Geographical origins and dispersions of termite genera. *Fieldiana: Zoology*, **37**: 465–521.
- Grassé, P.-P. 1949. *Traité de Zoologie (Anatomie, Systématique, Biologie)*, vol. 9. Insectes. 1117 pp. Masson, Paris.
- Grassé, P.-P. 1986. *Termitologia: anatomie, physiologie, biologie, systématique des termites*. vol. 3. xi, 715 pp. Masson, Paris.
- Grassé, P.-P. & Noirot, C. 1951. Nouvelles recherches sur la biologie de divers termites champignonnistes (Macrotermitinae). *Annales des Sciences Naturelles, Zoologie*, (11)**13**: 291–342.
- Hare, L. 1937. Termite phylogeny as evidenced by soldier mandible development. *Annals of the Entomological Society of America*, **30**: 459–486.
- Harris, W.V. 1961. *Termites: their recognition and control*. xii, 187 pp. Longmans, Green & Co., London.
- Holmgren, N. 1909. Termitenstudien: 1. Anatomische Untersuchungen. *Kungliga Svenska Vetenskapsakademiens Handlingar*, (2)**44**(3): 1–215.

- Johnson, R.A., Thomas, R.J., Wood, T.G. & Swift, M.J.** 1981. The inoculation of the fungus comb in newly founded colonies of some species of the Macrotermitinae (Isoptera). *Nigeria Journal of Natural History*, **15**: 751–756.
- Kemner, N.A.** 1934. Systematische und biologische Studien über die Termiten Javas und Celebes'. *Kungliga Svenska Vetenskapsakademiens Handlingar*, (3)**13**(4): 1–241.
- Krishna, K.** 1969. Introduction. Pp. 1–17 in Krishna, K. & Weesner, F.M. (Eds.), *Biology of Termites*, vol. 1. Academic Press, New York.
- Krishna, K.** 1970. Taxonomy, phylogeny, and distribution of termites. Pp. 127–152 in Krishna, K. & Weesner, F.M. (Eds.), *Biology of Termites*, vol. 2. Academic Press, New York.
- Noirot, C.** 1970. The nests of termites. Pp. 73–125 in Krishna, K. & Weesner, F.M. (Eds.), *Biology of Termites*, vol. 2. Academic Press, New York.
- Pearce, M.J.** 1997. *Termites: biology and pest management*. xii, 172 pp., 32 pls. CAB International, Oxon.
- Roonwal, M.L.** 1970. Termites of the Oriental region. Pp. 315–391 in Krishna, K. & Weesner, F.M. (Eds.), *Biology of Termites*, vol. 2. Academic Press, New York.
- Ruelle, J.E.** 1970. A revision of the termites of the genus *Macrotermes* from the Ethiopian region (Isoptera: Termitidae). *Bulletin of the British Museum of Natural History (Entomology)*, **24**: 363–444.
- Sands, W.A.** 1969. The association of termites and fungi. Pp. 495–524 in Krishna, K. & Weesner, F.M. (Eds.), *Biology of Termites*, vol. 1. Academic Press, New York.
- Sands, W.A.** 1998. *The identification of worker castes of termite genera from soils of Africa and the Middle East*. vii, 500 pp. CAB International, Oxon.
- Sieber, R. & Leuthold, R.H.** 1981. Behavioural elements and their meaning in incipient laboratory colonies of the fungus-growing termite *Macrotermes michaelseni* (Isoptera: Macrotermitinae). *Insectes Sociaux*, **28**: 371–382.
- Sjöstedt, Y.** 1896. *Termes liljeborgi*: eine neue, wahrscheinlich pilzanbauende Tagtermite aus Kamerun. Pp. 267–280 in: *Festskrift för Lilljeborg*. Almqvist & Wiksells, Uppsala.
- Sjöstedt, Y.** 1898. Zwei neue Termiten aus der westküste Afrikas. *Entomologisk Tidskrift*, **19**: 204–205.
- Sjöstedt, Y.** 1900a. Vorläufige Diagnosen einiger afrikanischen Termiten. *Entomologisk Tidskrift*, **20**: 278.
- Sjöstedt, Y.** 1900b. Monographie der Termiten Afrikas. *Kungliga Svenska Vetenskapsakademiens Handlingar*, (2)**34**(4): 1–236.
- Sjöstedt, Y.** 1926. Revision der Termiten Afrikas: 3. Monographie. *Kungliga Svenska Vetenskapsakademiens Handlingar*, (3)**3**(1): 1–419.
- Snyder, T.E.** 1949. Catalog of the termites (Isoptera) of the world. *Smithsonian Miscellaneous Collections*, **112**: 1–490.
- Thakur, M.L.** 1981. Origin, dispersion and distribution of Macrotermitinae (Isoptera: Termitidae). *Journal of Entomological Research*, **5**: 80–90.
- Tho, Y.P.** 1992. Termites of Peninsular Malaysia. *Malayan Forest Records*, **36**: 1–224.
- Weidner, H.** 1956. Beiträge zur Kenntnis der Termiten Angolas, hauptsächlich auf Grund der Sammlungen und Beobachtungen von A. de Barros Machado (I. Beitrag). *Publicações Culturais da Companhia de Diamantes de Angola*, **29**: 55–106.
- Weidner, H.** 1970. *Handbuch der Zoologie, IV: Arthropoda, 2. Hälfte: Insecta, Isoptera*. 147 pp. Gruyter, Berlin.
- Weidner, H. & Riou, B.** 1986. Termiten (Isoptera) aus dem Obermiozän von St-Bauzile (Ardèche, Frankreich). *Mitteilungen aus dem Geologisch-Paläontologischen Institut der Universität Hamburg*, **61**: 343–365.
- Wood, T.G., Bednarzik, M. & Aden, H.** 1987. Damage to crops by *Microtermes najdensis* (Isoptera, Macrotermitinae) in irrigated semi-desert areas of the Red Sea coast. 1. The Tihama region of the Yemen Arab Republic. *Tropical Pest Management*, **33**: 142–150.

Case 3159***Staphylinus maculosus* and *S. violaceus* Gravenhorst, 1802 (currently *Platydracus maculosus* and *P. violaceus*; Insecta, Coleoptera): proposed conservation of usage of the specific names**

A.F. Newton

Field Museum of Natural History, 1400 South Lake Shore Drive, Chicago, Illinois 60605, U.S.A. (e-mail: anewton@fieldmuseum.org)

Abstract. The purposes of this application are (1) to conserve the widely used staphylinid name *Platydracus maculosus* (Gravenhorst, 1802) by suppressing its senior subjective synonym *Staphylinus viduatus* Fabricius, 1801, which has been used only once in the past 160 years, and (2) to conserve the specific name of *Platydracus violaceus* (Gravenhorst, 1802). The latter name was originally published in combination with *Staphylinus* Linnaeus, 1758; it is a junior primary homonym of *S. violaceus* Olivier, 1795 (now *Plochionocerus violaceus*), but the two taxa have not been considered congeneric since 1833 and the conservation of *Platydracus violaceus* is proposed in accord with Article 23.9.5 of the Code.

Keywords. Nomenclature; taxonomy; Coleoptera; STAPHYLINIDAE; *Platydracus*; *Platydracus maculosus*; *Platydracus violaceus*; rove beetles.

1. Fabricius (1801, p. 591) described a new species *Staphylinus viduatus* from 'Carolina'. Gravenhorst (1802, p. 165) described another new species *Staphylinus maculosus* from 'Baltimore'. Gravenhorst (1806, p. 123) later extended his description of *S. maculosus* and listed *S. viduatus* as a synonym, without comment as to dates. Say (1830, p. 38; 1834, p. 451) noted that *S. viduatus* had priority over *S. maculosus* and used the former name as valid for the species. Nevertheless, in the staphylinid monographs of Nordmann (1837, p. 31) and Erichson (1839, p. 375), and in all subsequent publications known to me until 2000, *S. maculosus* has been used as the valid name for this species, and *S. viduatus* has been ignored or cited only as a synonym of *S. maculosus*. Moore & Legner (1975, p. 38) noted the one-year priority of *S. viduatus* but used *S. maculosus* as the valid name, specifically citing Article 23b of the 1961 and 1964 editions of the Code as the basis for rejecting *S. viduatus* as a nomen oblitum, although they did not refer the case to the Commission (and, unknown to them, the provision had been revoked with effect from 1 January 1973). In recent literature *S. maculosus* has usually been placed in the genus *Platydracus* Thomson, 1858, which was formerly treated as a subgenus of *Staphylinus* Linnaeus, 1758.

2. Very recently Smetana & Davies (2000, p. 41), in a world review of *Staphylinus* and related genera, listed the new combination *Platydracus viduatus* as a valid name with *P. maculosus* as its junior synonym, without comment and without indicating that this is a revised status for both names. Their adoption of a specific name that had not been used as valid since Say (1834) is contrary to the spirit of nomenclatural

stability in all recent editions of the Code, and is directly contrary to the letter of the fourth edition of the Code (Article 23.9.1) in effect at the time of publication (2 February 2000). However, the manuscript of Smetana & Davies (2000) was submitted for publication before 1 January 2000 (L. Herman and A. Smetana, pers. comm. April 2000), and thus according to Article 86.1.2 any nomenclatural acts by Smetana & Davies (2000) that are not in compliance with the Code's new provisions (in this case, with Article 23.9.1) cannot be set aside on this ground alone. The implications of this relative to the names *P. maculosus* and *P. viduatus* are that Article 23.9.1 cannot now be invoked automatically as intended (because *P. viduatus* has now been used, on this one occasion, as a valid name after 1899) and that an application to the Commission becomes necessary to conserve *P. maculosus*.

3. *Platydracus maculosus* is one of the best-known and largest species of staphylinid in North America, and in my opinion the replacement of its specific name with the effectively unused synonym *viduatus*, published one year earlier, would lead to confusion and instability in the North American scientific and semi-popular literature. Prior to Smetana & Davies (2000), *P. maculosus* easily met the two conditions of Article 23.9.1 for automatically preserving prevailing usage, since the senior synonym *viduatus* had not been used as valid since 1834 and *P. maculosus* has been used as a valid name in at least 30 works by more than 24 authors during the period 1951–1998 (some examples are Walker, 1957; Dillon & Dillon, 1961; Blackwelder, 1973; Moore & Legner, 1975; Headstrom, 1977; Papp, 1984; Arnett, 1985; Downie & Arnett, 1996, and Poole & Gentili, 1996; a list of 21 further works has been given to the Commission Secretariat). These examples of usage, including technical taxonomic articles, catalogs, ecological and behavioral studies, and semi-popular books, were all found in the literature in my office, and many additional examples could be found in a broader search of the literature. A search of the World Wide Web produced 10 different sites using *P. maculosus* as a valid name, but none using *P. viduatus*. Finally, during my nearly completed revision of the genus *Platydracus* of the New World (in which the synonymy of *P. maculosus* and *P. viduatus* has been confirmed), I have studied more than 3800 specimens of *P. maculosus* from 84 public and private insect collections worldwide and returned them individually labeled as *P. maculosus*. Based on this demonstrated extensive usage of *P. maculosus* as the valid name for this species in the published literature, on the Internet, and in collections, and the lack of use of *viduatus* as a valid name for 166 years until Smetana & Davies (2000), I propose that *S. maculosus* should be conserved; since the synonymy of *S. viduatus* has never been disputed it would be simpler to suppress the latter name rather than to give *maculosus* precedence over it.

4. Gravenhorst (1802, p. 162) described a new species *Staphylinus violaceus* from North America. Melsheimer (1844, p. 35) described *Staphylinus cuprepennis* as a color variety of *S. violaceus*. *S. cuprepennis* (always subsequently spelled *cupripennis*) was listed as a variety or synonym of *S. violaceus* in 19th and 20th century literature, but has never been used as the valid name for the species or treated as a subspecies. In recent literature, *S. violaceus* Gravenhorst has usually been placed in *Platydracus* Thomson, 1858.

5. Smetana & Davies (2000, p. 25) were apparently the first to note that *Staphylinus violaceus* Gravenhorst is a junior primary homonym of *S. violaceus* Olivier, 1795 (p. 8), and accordingly they replaced the Gravenhorst name with its

junior subjective synonym *S. cuprepennis* (as *Platydracus cupripennis*). Smetana & Davies also noted that *Staphylinus violaceus* Olivier is currently placed in the Neotropical genus *Plochionocerus* Dejean, 1833. Indeed, *Plochionocerus* was established by Dejean with *S. violaceus* Olivier as the only available species name, and this species has been included in either *Plochionocerus* or its junior objective synonym *Sterculia* Laporte, 1835 by all subsequent authors. Since Erichson (1839, p. 301), *Plochionocerus* (or *Sterculia*) has been placed in a higher taxon (currently treated as the tribe XANTHOLININI) separate from *Staphylinus* and *Platydracus* (tribe STAPHYLININI). Thus, although the action of Smetana & Davies (2000) in rejecting *Staphylinus violaceus* Gravenhorst as a junior primary homonym was consistent with earlier editions of the Code (though not with stability), it is directly contrary to Article 23.9.5 of the fourth edition of the Code in effect at the time of publication (2 February 2000). Article 23.9.5 prescribes the mandatory conservation of a junior primary homonym when the senior homonym has not been considered congeneric after 1899, as is the case here, by application to the Commission for a ruling.

6. *Platydracus* (or *Staphylinus*) *violaceus* (Gravenhorst) is one of the better-known species of STAPHYLINIDAE in North America, and in my opinion the replacement of this name with the later name *P. cuprepennis*, never used for a species or subspecies, would lead to confusion and instability in the North American scientific and semi-popular literature. Prior to Smetana & Davies (2000), *P. violaceus* nearly (and perhaps fully) met the conditions of Article 23.9.1.2 for the mandatory preservation of prevailing usage without reference to the Commission, since it has been used as a valid name in at least 20 works by more than 15 authors during the period 1951–1998 (some examples are Dillon & Dillon, 1961; Blackwelder, 1973; Moore & Legner, 1975 and 1979; Headstrom, 1977; Hoebeke, 1978; Arnett, 1985; Downie & Arnett, 1996 and Poole & Gentili, 1996; a further 11 references have been given to the Commission Secretariat). These works include technical taxonomic articles, catalogs, biological studies, and semi-popular books, were all found in the literature in my office, and I believe that at least five additional examples (bringing the case within Article 23.9.1.2) could be found in a broader search of the scientific literature. In contrast, until Smetana & Davies (2000) the name *cuprepennis* or *cupripennis* had not been adopted by anybody since being used for a variety in 1844. A search of the World Wide Web produced nine different sites using *Platydracus violaceus* as a valid name, but none using *P. cuprepennis* or *cupripennis*. Finally, during my nearly completed revision of the genus *Platydracus* of the New World (in which the synonymy of *violaceus* and *cuprepennis* has been confirmed), I have studied more than 1460 specimens of *P. violaceus* from 77 public and private insect collections worldwide and returned them individually labeled as *P. violaceus*. Based on this demonstrated extensive usage of *P. violaceus* as the valid name for this species in the published literature, on the Internet, and in collections, the lack of use of *P. cuprepennis* or *cupripennis* until Smetana & Davies (2000), and the fact that the senior homonym *Staphylinus violaceus* Olivier has been placed in a different genus and higher group of STAPHYLINIDAE for more than 160 years, in accordance with Article 23.9.5 of the Code I propose the conservation of *P. violaceus* (Gravenhorst) as a valid name.

7. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power:
 - (a) to suppress the name *viduatus* Fabricius, 1801, as published in the binomen *Staphylinus viduatus*, for the purposes of the Principle of Priority but not for those of the Principle of Homonymy;
 - (b) to rule that the name *violaceus* Gravenhorst, 1802, as published in the binomen *Staphylinus violaceus*, is not invalid by reason of being a junior primary homonym of *Staphylinus violaceus* Olivier, 1795;
- (2) to place on the Official List of Specific Names in Zoology the following names:
 - (a) *maculosus* Gravenhorst, 1802, as published in the binomen *Staphylinus maculosus*;
 - (b) *violaceus* Gravenhorst, 1802, as published in the binomen *Staphylinus violaceus* (not invalid by the ruling in (1)(b) above);
- (3) to place on the Official Index of Rejected and Invalid Specific Names in Zoology the name *viduatus* Fabricius, 1801, as published in the binomen *Staphylinus viduatus* and as suppressed in (1)(a) above.

References

- Arnett, R.H., Jr.** 1985. *American insects. A Handbook of the insects of America north of Mexico*. xiv, 850 pp. Flora and Fauna Publications, Gainesville.
- Blackwelder, R.E.** 1973. *Checklist of the Staphylinidae of Canada, United States, Mexico, Central America and the West Indies. North America Beetle Fauna Project, Family no. 15*. 165 pp. Biological Research Institute of America, Loudonville, New York.
- Dillon, E.S. & Dillon, L.S.** 1961. *A manual of common beetles of Eastern North America*. viii, 884 pp. Row, Peterson & Co., Evanston, Illinois.
- Downie, N.M. & Arnett, R.H., Jr.** 1996. *The beetles of Northeastern North America*, vols. 1 and 2. 1721 pp. Sandhill Crane Press, Gainesville.
- Erichson, W.F.** 1839. *Genera et species Staphylinorum insectorum Coleopterorum familiae*. viii, 400 pp. Morin, Berlin.
- Fabricius, J.C.** 1801. *Systema Eleutheratorum . . .*, vol. 2. 687 pp. Bibliopolii Academici Novi, Kiliae.
- Gravenhorst, J.L.C.** 1802. *Coleoptera Microptera Brunsvicensia . . .* lxvi, 206 pp. Reichard, Brunsvigae.
- Gravenhorst, J.L.C.** 1806. *Monographia Coleopterorum micropteriorum*. xvi, 248 pp. Dieterich, Gottingae.
- Headstrom, R.** 1977. *The beetles of America*. 488 pp. A.S. Barnes, South Brunswick and New York.
- Hoebbeke, E.R.** 1978. Notes on the biology of *Codrus carolinensis* (Hymenoptera: Proctotrupidae), a parasite of *Platydracus violaceus* (Coleoptera: Staphylinidae). *Journal of the Kansas Entomological Society*, **51**: 507–511.
- Melsheimer, F.E.** 1844. Descriptions of new species of Coleoptera of the United States. *Proceedings of the Academy of Natural Sciences of Philadelphia*, **2**: 26–43.
- Moore, I. & Legner, E.F.** 1975. A catalogue of the Staphylinidae of America North of Mexico (Coleoptera). *University of California Division of Agricultural Sciences Special Publication*, no. 3015. 514 pp.
- Moore, I. & Legner, E.F.** 1979. An illustrated guide to the genera of the Staphylinidae of America north of Mexico (Coleoptera). *University of California Division of Agricultural Sciences Priced Publication*, no. 4093. 332 pp.
- Nordmann, A.** 1837. *Symbolae ad monographiam Staphylinorum*. 167 pp., 2 pls. Academiae Caesareae Scientiarum, Petropoli.
- Olivier, A.G.** 1795. *Entomologie, ou histoire naturelle des insectes, avec leurs caractères génériques et spécifiques, leur description, leur synonymie, et leur figure enluminée*. Coléoptères, vol. 3, nos. 35–65. 557 pp., 65 pls. Lanneau, Paris.

- Papp, C.S.** 1984. *Introduction to North American beetles, with more than 1,000 illustrations*. 335 pp. Entomography Publications, Sacramento.
- Poole, R.W. & Gentili, P.** 1996. *Nomina Insecta Nearctica: a check list of the insects of North America*. Vol. 1: Coleoptera, Strepsiptera. 827 pp. EIS, Entomological Services, Rockville.
- Say, T.** 1830. *Descriptions of new species of North American insects, and observations on some of the species already described*. 41 pp. New Harmony, Indiana.
- Say, T.** 1834. Descriptions of new North American insects, and observations on some already described. *Transactions of the American Philosophical Society*, (2)4: 409–470.
- Smetana, A. & Davies, A.** 2000. Reclassification of the north temperate taxa associated with *Staphylinus* sensu lato, including comments on relevant subtribes of Staphylinini (Coleoptera: Staphylinidae). *American Museum Novitates*, **3287**: 1–88.
- Walker, T.J., Jr.** 1957. Ecological studies of the arthropods associated with certain decaying materials in four habitats. *Ecology*, **38**: 262–276.
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Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).

Case 3160***Dianulites petropolitana* Dybowski, 1877 and *Diplotrypa petropolitana* Nicholson, 1879 (Bryozoa): proposed conservation of the specific names**

Patrick N. Wyse Jackson

Department of Geology, Trinity College, Dublin 2, Ireland
(e-mail: wysjcknp@tcd.ie)

Caroline J. Buttler

*Department of Geology, National Museums and Galleries of Wales,
Cathays Park, Cardiff CF10 3NP, Wales, U.K.*

Marcus M. Key, Jr.

*Department of Geology, Dickinson College, Carlisle, Pennsylvania
17013–2896, U.S.A.*

Abstract. The purpose of this application is to conserve the specific names of *Dianulites petropolitana* Dybowski, 1877 and *Diplotrypa petropolitana* Nicholson, 1879 for two Ordovician trepostome bryozoans. In 1830 Pander established the name *Favosites petropolitana* for what he thought to be a coral, but which Ulrich (1882) pointed out was a bryozoan, now recognized as composite and indeterminate. Dybowski (1877) and Nicholson (1879) mistakenly applied the name *petropolitana* to two species which have not been considered congeneric since the 19th century. Suppression of Pander's name is proposed in order to conserve Dybowski's and Nicholson's names which are in current use. A lectotype is proposed for *Diplotrypa petropolitana* Nicholson, the type species of *Diplotrypa* Nicholson, 1879.

Keywords. Nomenclature; taxonomy; Bryozoa; Trepostomata; Ordovician; *Dianulites*; *Diplotrypa*; *Dianulites petropolitana*; *Diplotrypa petropolitana*.

1. Pander (1830, p. 105, pl. 1, figs. 6–11) established the nominal taxon *Favosites petropolitana* (named for the city of St Petersburg in Russia) for what he thought was a species of hemispherical coral from Estonia, collected in rocks supposedly of Lower Silurian age but now known to be Ordovician.

2. Dybowski (1877, p. 24, pl. 1, figs. 4–5) in a comprehensive monograph described several supposed chaetetid coral species from a number of sites in Estonia, including *Favosites petropolitana* Pander, 1830, which he assigned to *Dianulites* Eichwald, 1829. He described *Dianulites petropolitana* (Pander) as having a variable colony form with spherical, hemispherical, parabolic, sub-cylindrical, disc and mushroom-shaped colonies. Importantly, the internal features of this taxon were illustrated and shown to be composed of thin-walled chambers with irregularly-spaced diaphragms.

3. Nicholson (1879, p. 312) erected *Diplotrypa*, as a subgenus of *Monticulipora* d'Orbigny, 1849, for hemispherical monticuloporid 'corals' from the Ordovician of Sweden, and designated *Favosites petropolitana* Pander as the type species of *Diplotrypa*. He (Nicholson, 1879, p. 313, text-fig. 35a, pl. 13, figs. 3–3c) described and illustrated material collected from Ostragothia, Sweden, under the name *Monticulipora (Diplotrypa) petropolitana* (Pander). Comparison of Nicholson's illustrations with those of Dybowski (1877, pl. 1, figs. 4–5) shows them to be of two distinct species. Nicholson's material had been collected from a geological horizon corresponding to that from which Pander obtained his material, but which was in a neighbouring country, 600 km apart across the Baltic Sea. Nicholson noted that many corals had been described from different parts of the world under the names *Monticulipora petropolitana* or *Chaetetes petropolitanus*, which were regarded as conspecific with Pander's species on the basis of external colony morphology or surface features alone. He acknowledged that the internal features of Pander's species had not been determined—at the time he did not know of Dybowski's monograph. Nicholson was unable to locate Pander's original type series and (1879, p. 315) assigned his Swedish specimens as 'types' of *Monticulipora (Diplotrypa) petropolitana* Pander, 1830. His statement is invalid as a neotype designation since it does not fulfil all the conditions of Article 75.3. It has been confirmed by several authors (e.g., Fritz, 1966, p. 1336; Ross, 1970, p. 368) that Pander's specimens were unavailable for study or lost. A recent extensive search for Pander's material by the authors of this application was unsuccessful, and their present existence or whereabouts is unknown.

4. Steinmann (1880, p. 438), in a review of Dybowski's and Nicholson's papers, suggested that *Dianulites* should supplant *Diplotrypa*, but Nicholson (1881, p. 22) strongly refuted Steinmann's argument—'I find it impossible to accept *Dianulites*, Eichw., as emended by Dybowski, as being a natural group and I cannot agree with the suggestion made by Dr Steinmann that this division ought to supplant *Diplotrypa*, Nich., or that it is in any way the equivalent of the latter'.

5. Subsequently *Diplotrypa* was recognised by Ulrich (1882, p. 153) as relating to trepostome bryozoans rather than corals, and raised to generic status.

6. Bassler (1911), in a monograph on the early Palaeozoic bryozoans of the Baltic region, recognised the difficulty of applying Pander's species concept, and stated (p. 312) that it was unclear from his inadequate description and illustrations 'just which of the many hemispherical bryozoans Pander had in mind'. There are at least a dozen hemispherical bryozoans known from Russia which display a similar external morphology and hemispherical colony form. Bassler regarded the specific concepts of Dybowski and Nicholson to be based on good internal morphological evidence, and demonstrated that these authors had described and illustrated distinct species. He argued that the concept of the two taxa under consideration here should be based on the concepts of Dybowski and Nicholson and that their correct names should be *Dianulites petropolitana* Dybowski, 1877 and *Diplotrypa petropolitana* Nicholson, 1879 respectively. We are in agreement with Bassler. However, these names are not available, since each author thought he was applying Pander's specific name and Article 49 prohibits the use of a specific name for a taxon when it was applied to that taxon by misidentification. Nevertheless, the names *Dianulites petropolitana* and *Diplotrypa petropolitana* have been in use throughout the 20th century (see below).

7. Dybowski's (1877) material was collected from a number of localities in Estonia, including Reval, Kuckers, Wesenberg and Dubowiki. Material from the last locality was said by Dybowski to be in the University Museums of Dorpat and St Petersburg. However, we have failed to locate this material, and we intend to collect specimens from some of Dybowski's localities in Estonia and designate a neotype for *Dianulites petropolitana*.

8. *Dianulites* Eichwald, 1829 contains at least 21 species from the Ordovician of Russia, China, North America and the United Kingdom. Several taxa have been described as subspecies of *Dianulites petropolitana* (see McKinney, 1969, pp. 178–179).

9. *Diplotrypa*, which is stratigraphically restricted to the Ordovician (except for three Silurian species described from Russia and the U.S.A., and one from the Devonian of China), is widespread with over 25 species reported from the Baltic, Russia, Western Europe, China, Myanmar (Burma) and North America. The binomen *Diplotrypa petropolitana* is widespread in the literature and at least three varieties and two subspecies have been described (McKinney, 1973, pp. 55–57).

10. Some of Nicholson's (1879) illustrated material of *Diplotrypa petropolitana* is still extant in the Department of Geology, University of Aberdeen [prefix AUGD] (listed in Benton and Trewin, 1978, p. 14). We propose to designate as lectotype of *Diplotrypa petropolitana* the specimen from which two thin-sections have been cut and numbered AUGD 02883 (Nicholson, 1879, fig. 35a, pl. 13, fig. 3b) and AUGD 02884 (Nicholson, 1879, pl. 13, fig. 3c; Nicholson, 1881, fig. 3c).

11. Dybowski's and Nicholson's names are in current use for two different taxa as shown by the following usage references:

Dianulites petropolitana Dybowski, 1877 — Sardeson, 1936; Modzalevskaya, 1955; Sissingh, 1965; Spjeldnaes, 1996.

Diplotrypa petropolitana Nicholson, 1879 — Astrova, 1965, 1978; Bolton, 1966; Bork & Perry, 1968; Ross, 1970; McKinney, 1973; Key 1991.

However, as pointed out in para. 6 (above), in the absence of Commission action neither of these names can be used as valid and we propose the suppression of Pander's name in order to conserve their usage.

12. The International Commission of Zoological Nomenclature is accordingly asked:

(1) to use its plenary power:

(a) to suppress the name *petropolitana* Pander, 1830, as published in the binomen *Favosites petropolitana* for the purposes of the Principle of Priority but not for those of the Principle of Homonymy;

(b) to rule that the following specific names are deemed to be those of then new nominal species:

(i) *petropolitana* Dybowski, 1877, as published in the binomen *Dianulites petropolitana*;

(ii) *petropolitana* Nicholson, 1879, as published in the binomen *Diplotrypa petropolitana*;

(c) to set aside all previous fixations of type species for the nominal genus *Diplotrypa* Nicholson, 1879 and to designate *Diplotrypa petropolitana* Nicholson, 1879 as the type species;

- (2) to place on the Official List of Generic Names in Zoology the name *Diplotrypa* Nicholson, 1879 (gender: feminine), type species by designation in (1)(c) above *Diplotrypa petropolitana* Nicholson, 1879;
- (3) to place on the Official List of Specific Names in Zoology the following names, deemed to be then new nominal species as ruled under (1)(b) above:
 - (a) *petropolitana* Dybowski, 1877, as published in the binomen *Dianulites petropolitana*;
 - (b) *petropolitana* Nicholson, 1879, as published in the binomen *Diplotrypa petropolitana* and as defined by the lectotype proposed in para. 10 above (specific name of the type species of *Diplotrypa* Nicholson, 1879);
- (4) to place on the Official Index of Rejected and Invalid Specific Names in Zoology the name *petropolitana* Pander, 1830, as published in the binomen *Favosites petropolitana* and as suppressed in (1) above.

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References

- Astrova, G.G. 1965. The morphology, evolution, and system of the Ordovician and Silurian Bryozoa. *Trudy Paleontologeskogo Instituta*, **106**: 1–431. [In Russian].
- Astrova, G.G. 1978. The history of development, system, and phylogeny of the Bryozoa. Order Trepostomata. *Trudy Paleontologeskogo Instituta*, **169**: 1–240. [In Russian].
- Bassler, R.S. 1911. The early Paleozoic Bryozoa of the Baltic Provinces. *Bulletin of the United States National Museum*, **77**: 1–382.
- Bassler, R.S. 1953. In Moore, R.C. (Ed.), *Treatise on Invertebrate Paleontology*, Part G, Bryozoa. xiii, 153 pp. Geological Society of America and University of Kansas Press, Lawrence, Kansas.
- Benton, M.J. & Trewin, N.H. 1978. Catalogue of the type and figured material in the Palaeontology Collection, University of Aberdeen, with notes on the H.A. Nicholson Collection. *Publications of the Department of Geology and Mineralogy, University of Aberdeen*, **2**: 1–28.
- Bolton, T.E. 1966. Some late Silurian Bryozoa from the Canadian Arctic Islands. *Palaeontology*, **9**: 517–522.
- Bork, K.B. & Perry, T.G. 1968. Bryozoa (Ectoprocta) of Champlainian age (Middle Ordovician) from northwestern Illinois and adjacent parts of Iowa and Wisconsin. Part II. *Bythotrypa*, *Diplotrypa*, *Hemiphragma*, *Heterotrypa*, *Stigmatella*, *Eridotrypa*, and *Nicholsonella*. *Journal of Paleontology*, **42**: 337–355.
- Dybowski, W. 1877. *Die Chaetetiden der Ostbaltischen Silur-Formation*. 134 pp, 4 pls. Dorpat. [Also published 1879 in: *Verhandlungen der Russisch-Kaiserlichen Mineralogischen Gesellschaft zu St Petersburg*, (2)**4**: 1–134.]
- Fritz, M.A. 1966. *Diplotrypa schucherti*, a new bryozoan species from the Long Point Formation (Ordovician), western Newfoundland. *Journal of Paleontology*, **40**(6): 1335–1337.
- Key, M.M., Jr. 1991. The halloporid trepostome bryozoans from the Ordovician Simpson Group of Oklahoma. *Journal of Paleontology*, **65**(2): 200–212.

- McKinney, F.K.** 1969. Bibliography and list (1900–1965) of the Families Constellariidae and Dianulitidae (Ectoprocta, Order Cystoporata). *Southeastern Geology*, **10**(3): 175–184.
- McKinney, F.K.** 1973. Bibliography and catalogue (1900–1969) of the Trepostomata (Phylum Ectoprocta). *Southeastern Geology Special Publication*, **4**: 1–147.
- Modzalevskaia, E.A.** 1955. Kolonii mshanok ordovika i zavisimost ikh formy ot uslovii sushchestvovaniya. *Voprosy Paleontologii*, **2**: 125–135.
- Nicholson, H.A.** 1879. *On the Structure and Affinities of the 'Tabulate Corals' of the Palaeozoic Period with critical descriptions of illustrative species*. 342 pp., 15 pls. Blackwood, Edinburgh and London.
- Nicholson, H.A.** 1881. *On the Structure and Affinities of the Genus Monticulipora and its sub-genera with critical descriptions of illustrative species*. 240 pp., 6 pls. Blackwood, Edinburgh and London.
- Pander, C.H.** 1830. *Beiträge zur Geognosie des Russischen Reiches*. xviii, 165 pp., 34 pls. Kray, St Petersburg.
- Ross, J.R.P.** 1970. Distribution, paleoecology and correlation of Champlainian Ectoprocta (Bryozoa), New York State, Part III. *Journal of Paleontology*, **44**: 346–382.
- Sardeson, F.W.** 1936. Early bryozoans: *Monotrypa* and *Eridotrypa*. *Pan-American Geologist*, **66**: 179–190.
- Sissingh, W.** 1965. Grote paleozoische bryozoen uit het Keil'eem. *Natuurhistorisch Maandblad*, **54**: 155–171.
- Spjeldnaes, N.** 1996. Bryozoan colonies as indicators of bottom conditions in the Lower Ordovician. Pp. 315–319 in Gordon, D.P., Smith, A.M. & Grant-Mackie, J. (Eds.), *Bryozoans in Space and Time*. National Institute of Water & Atmospheric Research, Wellington.
- Steinmann, G.** 1880. Referate von: Dybowski, W. 1877 und Nicholson, H.A. 1879. *Neues Jahrbuch für Mineralogie, Geologie und Palaeontologie*, **1880**: 432–438.
- Ulrich, E.O.** 1882. American Palaeozoic Bryozoa. *Journal of the Cincinnati Society of Natural History*, **5**: 121–175.

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Case 3191

***Pareiasaurus karpinskii* Amalitzky, 1922 (currently *Scutosaurus karpinskii*; Reptilia, Pareiasauria): proposed conservation of the specific name**

Michael S.Y. Lee

Department of Palaeontology, The South Australian Museum, North Terrace, Adelaide 5000, Australia (e-mail: lee.mike@saugov.sa.gov.au)

Abstract. The purpose of this application is to conserve the specific name and typification of the taxon currently known as *Scutosaurus karpinskii* (Amalitzky, 1922), an abundant fossil pareiasaurian reptile from the Russian Permian. The specific name *karpinskii* is threatened by the spelling variant *karpinskyi*, inadvertently published prematurely by Watson (1917) when the full description was delayed by war and the death of Amalitzky; if the name were attributed to the 1917 publication the name-bearing type would not be the skeleton designated as the holotype of *Pareiasaurus karpinskii* by Amalitzky (1922).

Keywords. Nomenclature; taxonomy; Reptilia; Pareiasauria; PAREIASAURIDAE; *Scutosaurus*; *Scutosaurus karpinskii*; Permian; Russia.

1. The first specimens of the Permian pareiasaurian reptile currently known as *Scutosaurus karpinskii* (Amalitzky, 1922) were excavated from North Dvina (near Kotlas, north European Russia) around the beginning of the 20th-century by the palaeontologist Vladimir P. Amalitzky (Buffetaut, 1987; Ochev & Surkov, 2000). Amalitzky was preparing a full description of the entire North Dvina fauna, including the pareiasaur, but this was interrupted by the First World War and his sudden death in 1918 (Woodward, 1918; Buffetaut, 1987).

2. While Amalitzky's full description was delayed, his friend and colleague D.M.S. Watson (1917, p. 10) published a figure of a scapulocoracoid, labelling it '*Pariasaurus Karpinskyi*, Amalitz'. This drawing was based on a poor and extensively remodelled cast in the Natural History Museum, London, of a specimen (PIN 2005/1535) in the Palaeontological Institute of the Russian Academy of Sciences in Moscow. The full description of the species was only published (posthumously) five years later, when Amalitzky (1922, pp. 334–335) described the taxon as '*Pareiosaurus Karpinskii*', with a diagnosis and designation of a holotype. The holotype was illustrated and showed a complete skeleton in the Palaeontological Institute. This was matched by myself (Lee, 2000) to specimen number PIN 2005/1532 — a different individual from the specimen represented by Watson's cast.

3. Watson's brief description has priority over Amalitzky's fuller treatment, and if this were followed the specific name *karpinskyi* would have priority over *karpinskii* and the specimen (PIN 2005/1535) from which the London cast was made might be cited as the holotype, rather than the skeleton of a different animal (PIN 2005/1532). However, Watson's anatomical paper was clearly not intended to be a formal

description of a new taxon, since (a) he explicitly credits Amalitzky as the source of the name, listing it as '*Pariasaurus Karpinskyi*, Amalitz', and (b) apart from the illustration of the cast of a single element, he did not explicitly nominate a holotype or present a diagnosis. Clearly, he intended his contribution to appear after Amalitzky's formal description, but this did not occur due to the delays discussed above.

4. Hartmann-Weinberg (1930, p. 59) recognised that this Russian species is phylogenetically and morphologically very distinct from the South African taxon *Pareiasaurus serridens* (the type species of *Pareiasaurus* Owen, 1876), and she therefore erected the new genus *Scutosaurus* for the former; she consistently misspelt the specific name as *karpinsky*. Earlier proposed new generic assignments are typographic errors. Amalitzky (1922) obviously misspelt *Pareiasaurus*, since he referred the Russian taxon and *Pareiasaurus serridens* to the genus '*Pareiosaurus*'. Watson's (1914a, b; 1917) assignation of the Russian form and other pareiasaurs to '*Pariasaurus*' represents a similar invalid misspelling of *Pareiasaurus*. Evidently neither Amalitzky nor Watson intended to erect a new genus for *karpinskii*; they merely placed it in the same genus as *Pareiasaurus serridens* but misspelt the generic name.

5. Since Boonstra (1934a, b) the Russian taxon has almost universally been referred to as *Scutosaurus karpinskii* (Amalitzky, 1922). All papers since then have used the generic name *Scutosaurus* rather than the typographic variants of *Pareiasaurus*; examples are Hartmann-Weinberg (1937), Efremov (1940a, b, c); Huene (1944), Bystrow (1957), Olson (1957), Ivachnenko (1987), Gao (1989), Lee (1993, 1997, 2000), and Modesto & Rybczynski (2000). In contrast to the works listed above, only Gregory (1946) used the name *karpinskyi* while Kuhn (1969) used both spellings of the specific name.

6. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to suppress the specific name *karpinskyi* Watson, 1917, as published in the binomen *Pariasaurus karpinskyi*, for the purposes of both the Principle of Priority and the Principle of Homonymy;
- (2) to place on the Official List of Generic Names in Zoology the name *Scutosaurus* Hartmann-Weinberg, 1930 (gender: masculine), type species by monotypy *Pareiasaurus karpinskii* Amalitzky, 1822;
- (3) to place on the Official List of Specific Names in Zoology the name *karpinskii* Amalitzky, 1922, as published in the binomen *Pareiosaurus karpinskii* (specific name of the type species of *Scutosaurus* Hartmann-Weinberg, 1930);
- (4) to place on the Official Index of Rejected and Invalid Specific Names in Zoology the name *karpinskyi* Watson, 1917, as published in the binomen *Pariasaurus* [sic] *karpinskyi* and as suppressed in (1) above.

Acknowledgements

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specimens in The Natural History Museum, London; John Scanlon for comments on the manuscript; and the Association of Commonwealth Universities and the Australian Research Council for funding.

References

- Amalitzky, V.P.** 1922. Diagnoses of the new forms of vertebrates and plants from the Upper Permian on North Dvina. *Izvestiya Rossiiskoi Akademii Nauk*, (6)**16**: 329–340.
- Boonstra, L.D.** 1934a. Pareiasaurian studies, part 9. The cranial osteology. *Annals of the South African Museum*, **31**: 1–38.
- Boonstra, L.D.** 1934b. Pareiasaurian studies, part 10. The dermal armour. *Annals of the South African Museum*, **31**: 39–48.
- Buffetaut, E.** 1987. *A short history of vertebrate palaeontology*. 223 pp. Croom Helm, London.
- Bystrow, A.P.** 1957. [The pareiasaur skull]. *Trudy Paleontologicheskogo Instituta, Akademiia Nauk SSSR*, **68**: 3–18. [In Russian].
- Efremov, J.A.** 1940a. Kurze Übersicht über die Formen der Perm- und der Trias-Tetrapoden Fauna der USSR. *Zentralblatt für Mineralogie, Geologie und Paläontologie, Abteilungen B*, **1940**: 372–383.
- Efremov, J.A.** 1940b. [Composition of the Northern Dvina fauna of Permian Amphibia and Reptilia from the excavations of V.P. Amalitzky]. *Doklady Akademii Nauk SSSR*, **27**: 893–896. [In Russian].
- Efremov, J.A.** 1940c. [Preliminary description of the new Permian and Triassic Tetrapoda from USSR]. *Trudy Paleontologicheskogo Instituta, Akademiia Nauk SSSR*, **10**(2): 1–140. [In Russian].
- Gao, K.** 1989. Pareiasaurs from the Upper Permian of north China. *Canadian Journal of Earth Sciences*, **26**: 1234–1240.
- Gregory, W.K.** 1946. Pareiasaurs versus placodonts as near ancestors to the turtles. *Bulletin of the American Museum of Natural History*, **86**: 276–323.
- Hartmann-Weinberg, A.** 1930. Zur Systematik der Nord-Duna-Pareiasauridae. *Paläontologische Zeitschrift*, **12**(1): 47–59.
- Hartmann-Weinberg, A.** 1937. Pareiasauriden als Leitfossilien. *Problemy Paleontologii*, **2**(3): 649–712.
- Huene, F. von.** 1944. **Р** aus dem Ruhuhu-Gebiet. *Paläontologische Zeitschrift*, **23**C: 386–410.
- Ivachnenko, M.F.** 1987. [Permian parareptiles of the USSR]. *Trudy Paleontologicheskogo Instituta, Akademiia Nauk SSSR*, **223**: 1–160. [In Russian].
- Kuhn, O.** 1969. *Handbuch der Paläoherpetologie*. Teil 6: Cotylosauria. 89 pp. Gustav Fischer, Stuttgart.
- Lee, M.S.Y.** 1993. The origin of the turtle body plan: bridging a famous morphological gap. *Science*, **261**: 1616–1620.
- Lee, M.S.Y.** 1997. A taxonomic revision of pareiasaurs: implications for Permian terrestrial palaeoecology. *Modern Geology*, **21**: 231–298.
- Lee, M.S.Y.** 2000. The Russian pareiasaurs. Pp. 71–85 in Benton, M.J., Shishkin, M.A., Unwin, D.M. & Kurochkin, E.N. (Eds.), *The age of dinosaurs in Russia and Mongolia*. 696 pp. Cambridge University Press, Cambridge.
- Modesto, S.P. & Rychczynski, N.** 2000. The amniote faunas of the Russian Permian: implications for Late Permian terrestrial vertebrate biogeography. Pp. 17–34 in Benton, M.J., Shishkin, M.A., Unwin, D.M. & Kurochkin, E.N. (Eds.), *The age of dinosaurs in Russia and Mongolia*. 696 pp. Cambridge University Press, Cambridge.
- Ochev, V.G. & Surkov, M.V.** 2000. The history of excavation of Permo-Triassic vertebrates from Eastern Europe. Pp. 1–16 in Benton, M.J., Shishkin, M.A., Unwin, D.M. & Kurochkin, E.N. (Eds.), *The age of dinosaurs in Russia and Mongolia*. 696 pp. Cambridge University Press, Cambridge.
- Olson, E.C.** 1957. Catalogue of localities of Permian and Triassic terrestrial vertebrates of the territories of the U.S.S.R. *Journal of Geology*, **65**: 196–226.

- Owen, R.** 1876. *Catalogue of the fossil Reptilia of South Africa*. 88 pp. British Museum, London.
- Watson, D.M.S.** 1914a. On the skull of a pariasaurian reptile, and on the relationships of that type. *Proceedings of the Zoological Society of London*, **1914**: 155–180.
- Watson, D.M.S.** 1914b. On the nomenclature of pariasaurs. *Annals and Magazine of Natural History*, (8)**14**: 98–102.
- Watson, D.M.S.** 1917. The evolution of the tetrapod shoulder girdle and fore-limb. *Journal of Anatomy*, **52** (3rd series, vol. 13): 1–63.
- Woodward, A.S.** 1918. Vladimir Prochorovich Amalitsky. Obituary. *Geological Magazine*, **5**: 431–432.
-

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).

Case 3140***Sceloporus occidentalis* Baird & Girard, 1852 (Reptilia, Sauria):
proposed replacement of rediscovered syntypes by a neotype**

Edwin L. Bell

*Department of Biology, Albright College, Reading, Pennsylvania
19612–5234, U.S.A.*

Hobart M. Smith

*Department of Environmental, Population and Organismic Biology,
University of Colorado, Boulder, Colorado 80309–0345, U.S.A.*

David Chiszar

*Department of Psychology and Museum, University of Colorado, Boulder,
Colorado 80309–0334, U.S.A.*

Abstract. The purpose of this application is to designate a neotype for the Pacific blue-bellied lizard *Sceloporus occidentalis* Baird & Girard, 1852 (family PHRYNOSOMATIDAE) from the west coast ranges of North America. Two missing original syntypes were rediscovered in 1996 and, under Article 75.8 of the Code, resume the status of name-bearing specimens; however, they are immature specimens which do not distinguish *S. occidentalis* from closely related taxa. The proposed neotype, originally designated in 1954, is a well preserved adult specimen of known provenance.

Keywords. Nomenclature; taxonomy; Reptilia; Sauria; PHRYNOSOMATIDAE; *Sceloporus occidentalis*; Pacific blue-bellied lizards; western North America.

1. In 1852 Baird & Girard (p. 175) described *Sceloporus occidentalis* from 'California, and probably Oregon' on the basis of unspecified material in the U.S. National Museum, Washington.

2. A few years later the species was thoroughly described and illustrated (Girard, 1858, pp. 383–384, pl. 19, figs. 8–14), largely from an adult male (which is very likely specimen no. USNM 2838; see para. 3 below), but without any indication of the source of the material or mention of a locality, except as given in the original description.

3. A year later Baird (1859, p. 9) listed specimens USNM 2838 from 'Benicia, California' and USNM 2866 from the 'Upper Willamette valley' as examples of the species. They were both collected by Dr J.S. Newberry, who in 1857 published a report on the zoology of the proposed rail route from the Sacramento Valley to the Columbia River, and were probably original specimens of *Sceloporus occidentalis* Baird & Girard, 1852 (see, for example, Bell & Price, 1996, p. 1).

4. Grinnel & Camp (1917, p. 159) restricted the type locality of *S. occidentalis* to Benicia, Solano County, California.

5. In 1954 Bell (p. 34), the senior author of this application, designated a neotype for *S. occidentalis*, specimen no. MVZ 59874 in the Museum of Vertebrate Zoology, University of California, from Benicia, California, because there was a need to distinguish *S. occidentalis occidentalis* from closely related taxa and both specimens USNM 2838 and 2866 were supposedly lost. Dr Doris Cochran, then Curator of Herpetology at the U.S. National Museum, stated (in litt. to Bell, 1954) that 2838 was a USNM number but the specimen had not been in the National Museum since she went there in 1919. It did not appear to be in the Academy of Natural Sciences of Philadelphia either. It had apparently been lost. Indeed, Cochran (1961) did not list any types of *S. occidentalis* in the U.S. National Museum.

6. Price (in Bell & Price, 1996, p. 4) reported that 'According to R.P. Reynolds [of the U.S. National Museum] (in litt., 2.v.1996), USNM 2838 (presumably Girard's male) is lost, but USNM 2866 still exists and consists of two specimens, both *S. occidentalis*, a subadult female in good condition and a poorly preserved hatchling'. Thus, there are two original specimens of *S. occidentalis* still in existence. They are, however, both immature and fail to exhibit some diagnostic features critical for identification. Price (in Bell & Price, 1996) noted that 'With the discovery of these two syntypes, Article 75(h) of the International Code of Zoological Nomenclature [3rd edition, 1985] requires the International Commission on Zoological Nomenclature to rule on the status of the name-bearing type of *Sceloporus occidentalis*, a process which we have initiated'. An application has not been submitted until now.

7. Article 75.8 of the 4th edition of the Code, which came into effect in January 2000, records that 'If, after the designation of a neotype, the name-bearing type (holotype, syntypes, lectotype or previous neotype) of the nominal species-group taxon that was (were) presumed lost is (are) found still to exist, on publication of that discovery the rediscovered material again becomes the name-bearing type and the neotype is set aside (unless, following an application, the Commission rules that the neotype is to be retained as the name-bearing type)'.

8. The name *Sceloporus occidentalis* is very well known and well used for the Pacific blue-bellied lizard and has appeared in many recent publications on taxonomy, phylogeny, anatomy, biogeography, ecology, genetics, food habits, predators, physiology and reproduction, social behaviour and parasitism (an extensive and detailed bibliography was included in Bell & Price, 1996, pp. 2–4). We propose that the rediscovered syntypes of *S. occidentalis* be set aside and that a neotype be designated as the name-bearing specimen. Both the rediscovered syntypes are immature, fail to show some critical features and are from an imprecise locality in Oregon. The neotype specimen MVZ 59874 designated by Bell (1954) is an adult in excellent condition, exhibiting all critical features, and is from Benicia, California which has long been accepted as the type locality of *Sceloporus occidentalis*. The specimen, which is female, was collected by Dr Robert Stebbins; the total body length (snout-vent) is 69 mm, and the tail length (which is entire) is 81 mm. The color and scutellation, which were described by Bell & Price (1996), are typical of the nominate subspecies *S.o. occidentalis*. This subspecies occurs in California, including coastal ranges north of San Francisco and the Sierra Nevada to 7000 feet, and Oregon to the Columbia River. It is also found in the Puget Sound area of Washington State.

9. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to set aside all previous type fixations for the nominal species *Sceloporus occidentalis* Baird & Girard, 1852 and to designate specimen MVZ 59874 in the Museum of Vertebrate Zoology, University of California, as the neotype;
- (2) to place the name *occidentalis* Baird & Girard, 1852, as published in the binomen *Sceloporus occidentalis* and as defined by the neotype designated in (1) above, on the Official List of Specific Names in Zoology.

References

- Baird, S.F.** 1859. Report upon reptiles collected on the survey. Pp. 9–13 in Report of Lieut. Henry L. Abbot, Corps of Topographical Engineers, upon explorations for a railroad route, from the Sacramento Valley to the Columbia River, made by Lieut. R.S. Williamson. *Reports of explorations and surveys, to ascertain the most practicable and economical route for a railroad from the Mississippi River to the Pacific Ocean*, vol. 10, part 4, no. 4. 33rd Congress, 2nd Session, House of Representatives, Ex Document No. 91. Washington, D.C.
- Baird, S.F. & Girard, C.** 1852. Descriptions of new species of reptiles, collected by the U.S. Exploring Expedition under the command of Capt. Charles Wilkes, U.S.N. Part 1, including the species from the western coast of America. *Proceedings of the Academy of Natural Sciences of Philadelphia*, **6**: 174–177.
- Bell, E.L.** 1954. A preliminary report on the subspecies of the Western Fence lizard, *Sceloporus occidentalis* and its relationships to the Eastern Fence lizard, *Sceloporus undulatus*. *Herpetologica*, **10**: 31–36.
- Bell, E.L. & Price, A.H.** 1996. *Sceloporus occidentalis* Baird & Girard. *Catalogue of American Amphibians and Reptiles*, **631**: 1–17.
- Cochran, D.M.** 1961. Type specimens of reptiles and amphibians in the U.S. National Museum. *Bulletin of the United States National Museum*, **220**: 1–291.
- Girard, C.F.** 1858. Herpetology. Pp. 711–720 in: *United States Exploring Expedition, during the years 1838, 1839, 1840, 1841, 1842, under the command of Charles Wilkes, U.S.N.*, vol. 20.
- Grinnell, J. & Camp, C.L.** 1917. A distributional list of the amphibians and reptiles of California. *University of California Publications in Zoology*, **17**: 127–208.

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Comments on the proposed conservation of the specific name of *Chiton lepidus* Reuss, 1860 (currently *Lepidochitona lepida*; Mollusca, Polyplacophora)
(Case 3156; see BZN 57: 207–209)

(1) Philippe Bouchet

Muséum National d'Histoire Naturelle, 55 Rue de Buffon, F-75005 Paris, France

The purpose of the application by Enrico Schwabe is to conserve the name *Lepidochitona lepida* (Reuss, 1860) despite it being a junior primary homonym of *Chiton lepidus* Gould, 1859. The name *Lepidochitona lepida* relates to a fossil species from the Miocene of Europe; in the last 100 years it has been used in only nine publications by six independent authors (one of these publications is a catalogue of available names and does not critically evaluate the systematics of the taxon involved). Under these circumstances I consider that the name *Chiton lepidus* Reuss, 1860 does not merit setting aside the Principle of Homonymy, and I object to the use of the plenary power to conserve it.

(2) Enrico Schwabe

Münchhausenstrasse 21, D-81247 Munich, Germany

The name for the European Miocene species *Chiton lepidus* Reuss, 1860 is indeed a junior primary homonym of *Chiton lepidus* Gould, 1859, the name for a Recent Indo-Pacific species. However, as I made clear in para. 4 of my application, neither species has been included in the original genus since 1883, when Rochebrune placed *lepidus* Reuss in *Tonicia* Gray, 1840. Shortly after, Pilsbry (1893) also removed *lepidus* Gould from *Chiton* (and placed it in *Ischnochiton* Gray, 1847). Under Article 23.9.5 of the Code, the junior of two homonymous names should not automatically be renamed if the names have not been treated as congeneric since 1899: a case should be brought to the Commission while existing usage of both names is maintained, and this is what I have done.

The senior homonym *lepidus* Gould, 1859 has not been used as a valid name for more than a decade and the species is known as *Lepidozona luzonica* (Sowerby, 1842). The junior homonym *lepidus* Reuss, 1860 has been in use since its publication and has no junior synonyms. To rename *lepidus* Reuss at this late stage because of a long out-of-date primary homonymy would cause unnecessary confusion, and anyway the earlier name would always have to be cited. I urge the Commission to approve my proposal.

It is pointless to argue over trifles but nevertheless I point out that in para. 3 of my application I cited nine publications by nine (not 'six independent') authors to demonstrate the usage of *lepidus* Reuss. Since publication of the case I have found an additional three publications in which Reuss's name has been cited (a list of these works is held by the Commission Secretariat).

Comment on the proposed conservation of 31 species-group names originally published as junior primary homonyms in combination with *Buprestis* Linnaeus, 1758 (Insecta, Coleoptera)

(Case 3149; see BZN 58: 24–31)

Svatopluk Bílý

Department of Entomology, National Museum, Kunratice 1, CZ 148 00 Praha 4, Czech Republic

I should like to support the application of Charles Bellamy to conserve the 31 names originally published as junior primary homonyms in *Buprestis*. The proposal is in accord with the Code; all the names mentioned were widely and commonly used throughout the 20th-century and to change them would cause a lot of difficulties and confusion.

Comment on the proposed designation of a neotype for *Parasuchus hislopi* Lydekker, 1885 (Reptilia, Archosauria)

(Case 3165; see BZN 58: 34–36)

Axel Hungerbühler

Museum of Paleontology, University of California, 1101 Valley Life Sciences Building, Berkeley, CA 94720, U.S.A.

I am writing in support of Sankar Chatterjee's application to replace the fragmentary lectotype of *Parasuchus hislopi* Lydekker, 1885 by designating a nearly complete skeleton as the neotype. I fully agree with his reasoning.

Many phytosaur taxa (including the type species of *Phytosaurus* Jaeger, 1828) were established on isolated teeth and very fragmentary material. Since Chatterjee (1978) the specific name *hislopi* has been consistently employed for the basal phytosaur taxon represented by the skeletons and other material from the Maleri Formation, though not for other poorly preserved Indian phytosaur material such as *Brachysuchus maleriensis* Huene, 1940 and undescribed specimens from younger beds. Defining *Parasuchus hislopi* by means of an articulated skeleton rather than the fragmentary material of Lydekker (1885) clarifies the application of the generic and specific names, and removes any temptation to establish a new name based on the skeletons.

A number of authors have used *Paleorhinus* Williston, 1904 for any genus of basal phytosaurs, either including *Parasuchus* (which is incorrect for priority reasons) or rejecting *Parasuchus* as a nomen dubium. *Paleorhinus* has indeed become a well-known and widely applied name in the technical literature over the last 40 years, and one objection to the application might be that clarification of *Parasuchus* could lead to the rejection of *Paleorhinus*. However, the application of the name *Paleorhinus* itself is not without ambiguity. I recently re-studied the type specimen of the type species *Paleorhinus bransoni* (results as yet unpublished). The specimen is so poorly preserved that a distinction of *Paleorhinus bransoni* from other basal phytosaur species is problematic. Furthermore, I found it difficult to recognize with confidence features that justify a synonymy of *Paleorhinus* with any other nominal genus of basal

phytosaur such as *Promystriosuchus* Case, 1922, *Francosuchus* Kuhn, 1932, *Ebrachosuchus* Kuhn, 1936 or *Parasuchus* as employed by Chatterjee (1978). Most of the characters suggested so far in favour of a synonymy (e.g. Westphal, 1976; Chatterjee, 1978; Ballew, 1989; Hunt & Lucas, 1991) only describe the more primitive organization relative to more advanced phytosaurs that all these taxa have in common, but do not indicate that these forms are more closely related to each other than to any other non-basal phytosaur.

Nomenclatural stability is hardly achieved by replacing a nomen dubium (*Parasuchus*, as defined by the original material) with a name of uncertain or at best debatable application (*Paleorhinus*). The application of names among basal phytosaurs must be fixed and the taxa in question need to be re-studied, before decisions on the synonymy of specific and generic names can be presented. In contrast to most other type specimens involved (with the exception of those of *Ebrachosuchus*), the proposed neotype for *Parasuchus hislopi* is well-preserved, and it is one of the very few complete phytosaur skeletons known. I recommend that the Commission use its plenary power to approve Sankar Chatterjee's proposal.

Additional reference

Westphal, F. 1976. Phytosauria. Pp. 99–120 in Kuhn, O. (Ed.), *Handbuch der Paläoherpétologie*, vol. 13, Thecodontia. Fischer, Stuttgart.

Comments on the proposed precedence of the specific name of *Euphryne obesus* Baird, 1858 over that of *Sauromalus ater* Duméril, 1856 (Reptilia, Sauria)
(Case 3143; see BZN 58: 37–40)

(1) Harry L. Taylor

Biology, Regis University, 3333 Regis Boulevard, Denver, Colorado 80221–1099, U.S.A.

I support the proposal to give the name *Sauromalus obesus* (Baird, 1858) precedence over *S. ater* Duméril, 1856.

Prof Montanucci and his colleagues are to be commended for (1) an exceptionally thorough and objective evaluation of the evidence, and (2) making the herpetological community aware of the problem through two detailed publications in *Herpetological Review* (Montanucci, 2000 and 2001).

It is clear that nomenclatural stability should obtain in this case.

(2) Kenney L. Krysko

Division of Herpetology, Florida Museum of Natural History, University of Florida, Gainesville, Florida 32611, U.S.A.

I have read Case 3143. I agree with the authors and believe that they make a strong argument for using the name *Sauromalus obesus* in preference to *S. ater*.

Comment on the proposed designation of neotypes for *Vespertilio pipistrellus* Schreber, 1774 and *V. pygmaeus* Leach, 1825 (currently *Pipistrellus pipistrellus* and *P. pygmaeus*; Mammalia, Chiroptera)

(Case 3073; see BZN 56: 182–186; 57: 49–50, 113–116; 58: 60–61)

Victor Van Cakenberghe

*Department of Biology, Universiteit Antwerpen, Universiteitsplein 1,
B-2160 Antwerp (Wilrijk), Belgium*

Jones & Parijs (1993) showed that the European pipistrelle known as *Pipistrellus pipistrellus* (Schreber, 1774) consists of two cryptic species. Jones & Barratt (1999) adopted the name *P. pipistrellus* for the 45 kHz phonic type and *P. pygmaeus* (Leach, 1825) for the 55 kHz phonic type; for over 160 years authors had considered *pygmaeus* to be a synonym for *P. pipistrellus* and did not use it as a valid name. Leach (1825) had said that *V. pygmaeus* was considerably smaller than *V. pipistrellus*. However, size differences between the phonic types are very minute and, based on the data of Barlow et al. (1997), some specimens could be erroneously attributed. In normal circumstances the type specimen can be used to shed some light, but the holotype of *V. pygmaeus* is a badly damaged juvenile and cannot be assigned to either phonic type.

As far as I know, the first author applying a name to the 55 kHz form was Elizabeth Kalko (1995, p. 862), who stated 'Following the classification of several authors, I recognise *Pipistrellus p. mediterraneus* Cabrera, 1904 as a subspecies of *Pipistrellus pipistrellus*. My distinction is based largely on the higher terminal frequency in *P. p. mediterraneus* of southern Spain compared with that of *P. p. pipistrellus* in Central Europe. Furthermore, it is likely that *P. p. mediterraneus* corresponds to the '55 kHz' sonic type described by Jones & Parijs (1993) and hence may represent a distinct species'. It is clear that she did not actually claim that the 55 kHz form was *mediterraneus*, but the reasons to accept this name are certainly no less valid than those for *pygmaeus*. *V. p. mediterraneus* is a clearly defined taxon of which a lectotype has been designated by Ibáñez & Fernández (1989), and numerous specimens are available. The remarks made by Jones & Barratt in para. 6 of their application that the name *mediterraneus* would be misleading and that Leach's name *pygmaeus* is much older (Hutson, BZN 57: 115–116; Jones, BZN 57: 116) have no value. Being 'misleading' does not constitute a reason to reject a taxonomic name; Leach's name is indeed much older, but there is no proof that it represented the 55 kHz phonic type.

If one of the many supposed synonyms of *P. pipistrellus* described prior to that of *mediterraneus* in 1904 is found to represent the 55 kHz type, that would indeed lead to a change in the name for the taxon; this would be unfortunate, but not exceptional. An example in *Pipistrellus* can be found among the African species. For a long period of time the name *P. deserti* Thomas, 1902 denoted one of the northern African species. Qumsiyeh (1982) argued that the correct name for this taxon should be *P. aegyptius* (Fischer, 1829), a name which is generally in use since then. However, Kock (1999) showed that *aegyptius* should be considered as a nomen dubium, and that the name *deserti* should be used again. So over a period of a few years, the name

of this species changed twice. Another even more drastic example can be found in *Scotophilus*, where Robbins (1978) showed that the name *S. nigrita* actually referred to the largest African form and not to the medium-sized form, which since then has been called *S. dinganii*. Thus prior to 1978 *S. nigrita* referred to the largest African form and subsequent references (probably) refer to the middle-sized form. These changes, which have a much heavier impact than simply replacing one name by another, have now been accepted by almost everyone. Therefore, I do not see any problem in calling the 55 kHz phonic type *P. mediterraneus* Cabrera, 1904, which clearly was that taxon, and in the future changing the name to one of the older synonyms if it can be proven to be applicable.

The proposal of a neotype for *Vespertilio pygmaeus* seems premature, and I suggest that this name should be treated as a nomen dubium and be ignored. The fact that no objections were received to Case 3073 when it was discussed at a workshop at the 7th European Bat Research Symposium (Krakow, August 1999; see Jones, BZN 57: 116, para. (d)) is of no significance.

In conclusion, I agree with Helversen, Mayer & Kock (BZN 57: 113–114, para. 4) in accepting the neotype of *V. pipistrellus* Schreber, 1774 put forward by Jones & Barratt, and in proposing that the name *P. mediterraneus* Cabrera, 1904 should be put on the Official List instead of *V. pygmaeus* Leach, 1825.

Additional references

- Kock, D.** 1999. The Egyptian *Vespertilio pipistrellus aegyptius* Fischer 1829, a nomen dubium. (Mammalia, Chiroptera, Vespertilionidae). *Senckenbergiana Biologica*, **79**: 101–105.
- Qumsiyeh, M.B.** 1982. The bats of Egypt. *Special Publication of the Museum of the Texas Tech. University*, **23**: 1–102.
- Robbins, C.B.** 1978. Taxonomic identification and history of *Scotophilus nigrita* (Schreber) (Chiroptera: Vespertilionidae). *Journal of Mammalogy*, **59**: 212–213.

Comments on the proposed conservation of usage of 15 mammal specific names based on wild species which are antedated by or contemporary with those based on domestic animals

(Case 3010; see BZN 53: 28–37, 125, 192–200, 286–288; 54: 119–129, 189; 55: 43–46, 119–120; 56: 72–73, 280–282)

(1) Hans-Peter Uerpmann

Institut für Ur- und Frühgeschichte und Archäologie des Mittelalters, Schloss Hohentübingen, Burgsteige 11, 72070 Tübingen, Germany

The majority of comments on the application by Gentry, Clutton-Brock & Groves have been in favour of the conservation of usage of 15 mammal specific names based on wild species which are antedated by or contemporary with those based on domestic animals. However, some concerns remain with regard to the consequences of the implementation of the proposals (see Grubb in BZN 56: 280–282). Some of Grubb's concerns relate to issues which are wholly theoretical but it is nonetheless

clear that nomenclatural usages have developed which are not in complete conformity with the strictest interpretation of the Code. Most zoologists, however, are aware that nomenclature is a tool and that names in use must remain stable despite some workers' reservations about deliberately setting aside provisions of the Code.

Comments opposing the application have mainly been made by scientists for whom the problems of names for wild species and their derived domesticates are of only theoretical importance. Most of the supportive comments have been submitted by colleagues dealing with animal history, archaeo- or palaeo-zoology and other fields of science (or day-to-day life) where the separate treatment of wild and domestic animals is of practical concern. Actually, this latter group has long been acting according to the proposal now submitted by Gentry, Clutton-Brock & Groves. A ruling by the Commission in favour of the application will simply legalise the result of an evolution of zoological nomenclature during the past century, and failure of the application is unlikely to reverse this evolution. Most of the workers — including myself — who have been using all or some of the 15 specific names for wild species as listed by Gentry et al. (BZN 53: 34) have done so in complete awareness of the situation (see Gentry et al. in BZN 54: 127–129).

The problem, as perceived by the opponents of the proposal, is that a ruling by the Commission in favour will sanction duplicate names for the 15 species listed by Gentry et al. This is, however, not the case. Domestic animals have been separated from nature by human influences. They are artefacts — as shown by the various attempts to devise schemes for their naming, none of which has been universally accepted (see Groves in BZN 52: 139–140 and Gentry et al. in BZN 53: 29–31). While their Linnaean names, like *Equus caballus*, may be used for them as scientific names, these cannot be attached to the names of their wild ancestors in the form of trinomina. I agree with Grubb when he writes (BZN 56: 282) that 'workers dealing with wild mammals are intelligent beings. They would understand what was meant by *Camelus bactrianus ferus*, *Bubalus bubalis arnee* or *Equus caballus przewalskii*', but is it plausible to suppose that these particular wild species need three names instead of two, and why is there no *Equus caballus caballus*?

The 'confusion' and 'destabilisation' feared by Schodde (BZN 54: 123) and Bock (BZN 54: 125) as a result of approval of the proposal will not materialise because the requested ruling will only stabilise the existing status quo. On the other hand, the unfortunate use of Linnaeus's names, based on domesticates, for wild ungulates in the 1993 edition of *Mammal species of the world*, edited by Wilson and Reeder, is really confusing because of the inconsistent use of younger names, based on wild species, in the case of some carnivores. To excuse this as a minor oversight in the middle of an enormous accomplishment (Gardner in BZN 54: 125) is correct with regard to the accomplishment but is also symptomatic of the instability following the editorial attempt to stick to the earliest names, whether based on a wild species or a domestic derivative.

In reality a ruling in favour of the proposal would neither result in 'dual' names nor would it create a precedence for other fields of zoological nomenclature. The list of animals which were first described and named as domesticates, and for which there are distinct names in use for their wild progenitors, is clearly limited, and thus also would be the ruling by the Commission. In addition, the 'intelligent beings' working with wild mammals (and also those working with domesticates) would continue to

understand that the older, Linnaean names for domesticates are not applicable to the wild species in question.

I hope that the Commission will take a pragmatic approach to the problem of the names for the 15 mammal species based on wild taxa which are antedated by or contemporary with those based on domesticates. I strongly support the proposal by Gentry, Clutton-Brock & Groves.

(2) Anthea Gentry

Littlewood, Copyhold Lane, Cuckfield, Haywards Heath, West Sussex RH17 5EB, U.K.

Juliet Clutton-Brock

Working Group on Nomenclature, International Council of Archaeozoology, clo Department of Zoology, The Natural History Museum, Cromwell Road, London SW7 5BD, U.K.

Colin P. Groves

Department of Archaeology and Anthropology, The Australian National University, Canberra, A.C.T. 0200, Australia

Our application seeks to ensure the stability of 15 specific names for wild species where these are traditionally distinct from those of their domestic derivatives. As Prof H.-P. Uerpmann has noted above, our proposals are not radical and their approval by the Commission will merely ratify current usage. Implementation of the proposals will allow workers the taxonomic freedom to decide whether or not domesticates are included in the species concept. Nonetheless, Dr Peter Grubb (BZN 56: 280–282) has questioned the application and taxonomic limits of the names based on wild populations.

We respond to Grubb's points in the order in which he submitted them.

1. In contrast to Grubb's statement, our application seeks to solve a very long-standing nomenclatural problem and not one of systematics. The taxonomic status of domestic forms in relation to their wild progenitors is a decision for individual workers. In practice, since wild species and their domesticates are recognizable entities and it is usually desirable to separate them, their names are treated as distinct and have been for a number of years.

2. Zoological names are labels for biological taxa. It would be theoretically possible for the name of a wild ancestor to be treated as a subspecies of the name for its domestic derivative, as in the example *Bos taurus primigenius* quoted by Grubb, but this would be eccentric and to our knowledge has not occurred (see also the comment above by Prof H.-P. Uerpmann).

3. Grubb noted that names based on wild populations were introduced for a number of wild taxa distinct from names based on their domestic derivatives (see Bohlken, 1958, for *Bos mutus*, *B. gaur* and *Bubalus arnee*). These names for wild species were subsequently taken up by researchers on domestication. There has been a growing need for their use and they have been increasingly adopted during the second half of the 20th century, as demonstrated by the many supportive comments on this case. There is, in fact, a wealth of literature in the fields of anthropology, archaeo-zoology and the history of domestication, published in papers, reviews,

books, excavation reports and serials (for example, the authoritative *Journal of Archaeological Science*), in which these names are continually employed but these works are not normally cited in *Zoological Record*. To revert now to names based on domestic forms for these wild species (whether or not the domesticates are treated as conspecific) would cause immense confusion and would be a truly retrograde step.

4. There is no confusion with names that refer to both the wild species and its domestic derivative, and there are many examples of such names in use (*Oryctolagus cuniculus*, used for the western Mediterranean wild rabbit and the almost world-wide feral rabbit, is one such). Problems arise only when separate names for the wild species and domestic form have been adopted and that for the latter is then transferred (as has been done by a minority of workers) to the wild taxon.

5. As noted by Prof Uerpmann (above), approval of our proposals by the Commission will merely ratify the current nomenclatural situation: names based on wild populations will continue to be used for wild species and will include those for domestic forms if these are considered conspecific. As noted in para. 1 above, wild species and their domesticates are usually treated as distinct, and thus so are their names, but it is for each worker to decide the taxonomic limits of the wild species (see our previous explanatory comment in **BZN 54**: 128–129).

6 and 7. Attribution of the correct specific name for a wild species, based on a wild population, will not be affected by modifications to the history of domestication as it unfolds with greater knowledge (see, in particular, the comment by Prof A. Mones in **BZN 56**: 72–73 on the domestication of the guinea pig).

We commend our application to the Commission.

OPINION 1979 (Case 3086)***Hyalinia villae adamii* Westerlund, 1886 (currently *Oxychilus adamii*; Mollusca, Gastropoda): specific name *adamii* conserved by the replacement of the syntypes with a neotype**

Keywords. Nomenclature; taxonomy; Gastropoda; ZONITIDAE; *Oxychilus adamii*; pulmonates; Alps.

Ruling

- (1) Under the plenary power all previous type fixations for the nominal species *Hyalinia adamii* Westerlund, 1886 are hereby set aside and specimen no. MZUF 13735 in the Museo Zoologico de 'La Specola', Sezione del Museo di Storia Naturale dell'Università di Firenze, Italy, collected in Val Seriana, Bergamo Province, is designated as the neotype.
- (2) The name *adamii* Westerlund, 1886, as published in the trinomen *Hyalinia villae adamii* and as defined by the neotype designated in (1) above, is hereby placed on the Official List of Specific Names in Zoology.

History of Case 3086

An application for the conservation of the specific name of *Hyalinia adamii* Westerlund, 1886 by the replacement of the syntypes with a neotype was received from Dr G. Manganelli and Prof F. Giusti (*Università di Siena, Siena, Italy*) on 23 February 1998. After correspondence the case was published in BZN 57: 14–16 (March 2000). Notice of the case was sent to appropriate journals.

The case received (in litt., May 1998) the support of Dr Adolf Riedel (*Museum and Institute of Zoology, Polish Academy of Sciences, Warszawa, Poland*) (para. 5 of the application).

Decision of the Commission

On 1 March 2001 the members of the Commission were invited to vote on the proposals published in BZN 57: 15. At the close of the voting period on 1 June 2001 the votes were as follows:

Affirmative votes — 14: Alonso-Zarazaga, Bock, Brothers, Calder, Cogger, Eschmeyer, Kraus, Macpherson, Martins de Souza, Mawatari, Minelli, Nielsen, Papp, Patterson

Negative votes — 7: Bouchet, Kerzhner, Lamas, Mahnert, Ng, Rosenberg and Štys.

No votes were received from Dupuis and Song.

Kerzhner commented: 'I see no serious threat to the stability of nomenclature if the provisions of the Code are followed in this case'. Ng commented: 'I sympathise with this case but I see no strong and convincing reason why the types of *Oxychilus adamii* (Westerlund, 1886) should be changed. Acceptance of the original synonymy of *O. adamii* with *O. mortilleti* (Pfeiffer, 1859) would not cause any major nomenclatural problems as far as I can see from the application, and a new name for the species

mistakenly called *adamii* should be established with a new type'. Rosenberg commented: 'In my view the specific name of *adamii* has not been used extensively enough to warrant conservation'. Štys commented: 'The Code should be followed in this case without any intervention by the Commission. I prefer that a new name be established for *Oxychilus adamii* auct'.

Original references

The following is the original reference to the name placed on an Official List by the ruling given in the present Opinion:

adamii, *Hyalinia villae*, Westerlund, 1886, *Fauna der in der paläarktischen Region ... lebenden Binnenconchylien*, part 1 (Fam. Testacellidae, Glandinidae, Vitrinidae and Leucochroidae), p. 48.

OPINION 1980 (Case 3088)***Doris verrucosa* Linnaeus, 1758 (Mollusca, Gastropoda): generic and specific names conserved by the designation of a neotype**

Keywords. Nomenclature; taxonomy; Gastropoda; Nudibranchia; DORIDIDAE; *Doris*; *Doris verrucosa*; *Doris derelicta*; *Doridigitata*; *Staurodoris*; Atlantic; Mediterranean.

Ruling

- (1) Under the plenary power all previous fixations of type specimens for *Doris verrucosa* Linnaeus, 1758 and *D. derelicta* Fischer, 1867 are hereby set aside and the specimen labelled as the neotype in the Muséum National d'Histoire Naturelle, Paris, collected from Castropol, Asturias, Spain, is hereby designated as the neotype of both nominal species.
- (2) The name *Doris* Linnaeus, 1758 (gender: feminine), type species by monotypy *Doris verrucosa* Linnaeus, 1758, is hereby placed on the Official List of Generic Names in Zoology.
- (3) The name *verrucosa* Linnaeus, 1758, as published in the binomen *Doris verrucosa* and as defined by the neotype designated in (1) above (specific name of the type species of *Doris* Linnaeus, 1758), is hereby placed on the Official List of Specific Names in Zoology.
- (4) The name DORIDIDAE Rafinesque, 1815, type genus *Doris* Linnaeus, 1758, is hereby placed on the Official List of Family-Group Names in Zoology.
- (5) The following names are hereby placed on the Official Index of Rejected and Invalid Generic Names in Zoology:
 - (a) *Doridigitata* d'Orbigny, 1839 (a junior objective synonym of *Doris* Linnaeus, 1758);
 - (b) *Staurodoris* Bergh, 1878 (a junior objective synonym of *Doris* Linnaeus, 1758).
- (6) The name *derelicta* Fischer, 1867, as published in the binomen *Doris derelicta* and as defined by the neotype designated in (1) above, is hereby placed on the Official Index of Rejected and Invalid Specific Names in Zoology (a junior objective synonym of *Doris verrucosa* Linnaeus, 1758).
- (7) The name DORIDIGITATIDAE Iredale & O'Donoghue, 1923 (type genus *Doridigitata* d'Orbigny, 1839) is hereby placed on the Official Index of Rejected and Invalid Family-Group Names in Zoology (a junior objective synonym of DORIDIDAE Rafinesque, 1815).

History of Case 3088

An application for the conservation of the generic and specific names of *Doris verrucosa* Linnaeus, 1758 was received from Prof Philippe Bouchet and Dr Angel Valdés (*Muséum National d'Histoire Naturelle, Paris, France*) on 20 March 1998. After correspondence the case was published in BZN 57: 74–80 (June 2000). Notice of the case was sent to appropriate journals.

Decision of the Commission

On 1 March 2001 the members of the Commission were invited to vote on the proposals published in BZN 57: 77–78. At the close of the voting period on 1 June 2001 the votes were as follows:

Affirmative votes — 19: Alonso-Zarazaga, Bock, Brothers, Calder, Eschmeyer, Kerzhner, Kraus, Lamas, Macpherson, Mahnert, Martins de Souza, Mawatari, Minelli, Ng, Nielsen, Papp, Patterson, Rosenberg, Štys

Negative votes — none.

No votes were received from Bouchet, Cogger, Dupuis and Song.

Original references

The following are the original references to the names placed on Official Lists and Official Indexes by the ruling given in the present Opinion:

delecta, *Doris*, Fischer, 1867, *Journal de Conchyliologie*, (3)15: 7.

DORIDIDAE Rafinesque, 1815, *Analyse de la Nature, ou tableau de l'Univers et des Corps Organisés*, p. 142.

Doridigitata d'Orbigny, 1839, in Webb, P.B. & Berthelot, S. (Eds.), *Histoire naturelle des îles Canaries, Mollusques*, vol. 2, part 2, p. 39.

DORIDIGITATIDAE Iredale & O'Donoghue, 1923, *Proceedings of the Malacological Society of London*, 15: 226.

Doris Linnaeus, 1758, *Systema Naturae*, Ed. 10, vol. 1, p. 653.

Staurodoris Bergh, 1878, in Semper, C. (Ed.), *Reisen im Archipel der Philippinen*, Theil 2, Band 2, p. 578.

verrucosa, *Doris*, Linnaeus, 1758, *Systema Naturae*, Ed. 10, vol. 1, p. 653.

OPINION 1981 (Case 3133)***Peristernia* Mörch, 1852 and *Clivipollia* Iredale, 1929 (Mollusca, Gastropoda): conserved by the designation of *Turbinella nassatula* Lamarck, 1822 as the type species of *Peristernia***

Keywords. Nomenclature; taxonomy; Gastropoda; FASCIOLARIIDAE; BUCCINIDAE; *Peristernia*; *Clivipollia*; *Peristernia nassatula*; *Clivipollia imperita*.

Ruling

- (1) Under the plenary power all fixations of type species for the nominal genus *Peristernia* Mörch, 1852 prior to the designation by von Martens (1868) of *Turbinella nassatula* Lamarck, 1822 are hereby set aside.
- (2) The following names are hereby placed on the Official List of Generic Names in Zoology:
 - (a) *Peristernia* Mörch, 1852 (gender: feminine), type species by subsequent designation by von Martens (1868) *Turbinella nassatula* Lamarck, 1822, as ruled in (1) above;
 - (b) *Clivipollia* Iredale, 1929 (gender: feminine), type species by monotypy *Clivipollia imperita* Iredale, 1929.
- (3) The following names are hereby placed on the Official List of Specific Names in Zoology:
 - (a) *nassatula* Lamarck, 1822, as published in the binomen *Turbinella nassatula* (specific name of the type species of *Peristernia* Mörch, 1852);
 - (b) *imperita* Iredale, 1929, as published in the binomen *Clivipollia imperita* (specific name of the type species of *Clivipollia* Iredale, 1929).

History of Case 3133

An application for the conservation of the name *Peristernia* Mörch, 1852 by the designation of *Turbinella nassatula* Lamarck, 1822 as the type species, thereby conserving also the name *Clivipollia* Iredale, 1929, was received from Dr Martin Avery Snyder (*Villanova, Pennsylvania, U.S.A.*) on 13 August 1999. After correspondence the case was published in *BZN* 57: 81–83 (June 2000). Notice of the case was sent to appropriate journals.

A comment in support of the application from Dr William G. Lyons (*St Petersburg, Florida, U.S.A.*) and Mr Richard E. Petit (*North Myrtle Beach, South Carolina, U.S.A.*) was received during the voting period and published in *BZN* 58: 141–144 (June 2001). These authors pointed out that von Martens (1868) had designated *Turbinella nassatula* Lamarck, 1822 as the type species of *Peristernia* Mörch, 1852 several years earlier than the designation by Melvill (1891) cited in the application. This earlier type species designation has been incorporated into the ruling on this case. Lyons & Petit (*BZN* 58: 143) also noted that approval of the application by the Commission would conserve the subfamily name PERISTERINIINAE Tryon, 1881.

Decision of the Commission

On 1 March 2001 the members of the Commission were invited to vote on the proposals published in BZN 57: 82. At the close of the voting period on 1 June 2001 the votes were as follows:

Affirmative votes — 18: Alonso-Zarazaga, Bock, Bouchet, Brothers, Calder, Eschmeyer, Kerzhner, Kraus, Macpherson, Mahnert, Martins de Souza, Mawatari, Minelli, Nielsen, Papp, Patterson, Rosenberg, Štys

Negative votes — 3: Cogger, Lamas and Ng.

No votes were received from Dupuis and Song.

Bouchet commented: '*Peristernia* Mörch, 1852 is a commonly used generic name in the FASCIOLARIIDAE and transferring its use to the BUCCINIDAE would be extremely undesirable'. Cogger would have voted in favour if information had been given on type material of *Peristernia nassatula* (Lamarck, 1822).

Original references

The following are the original references to the names placed on Official Lists by the ruling given in the present Opinion:

Clivipollia Iredale, 1929, *The Australian Zoologist*, **5**: 347.

imperita, *Clivipollia*, Iredale, 1929, *The Australian Zoologist*, **5**: 347.

nassatula, *Turbinella*, Lamarck, 1822, *Histoire naturelle des animaux sans vertèbres . . .*, vol. 7, p. 110.

Peristernia Mörch, 1852, *Catalogus conchyliorum quae reliquit D. Alphonso d' Aguirra & Gadea, Comes de Yoldi, &c. Fasciculus primus* (Cephalophora), p. 99.

The following is the reference for the designation of *Turbinella nassatula* Lamarck, 1822 as the type species of *Peristernia* Mörch, 1852:

Martens, E. von. 1868. Mollusca. *Zoological Record*, **4**: 530.

OPINION 1982 (Case 3090)

Musca arcuata* Linnaeus, 1758 and *M. festiva* Linnaeus, 1758 (currently *Chrysotoxum arcuatum* and *C. festivum*) and *M. citrofasciata* De Geer, 1776 (currently *Xanthogramma citrofasciatum*) (Insecta, Diptera): specific names conserved by the designation of neotypes for *M. arcuata* and *M. festiva

Keywords. Nomenclature; taxonomy; Diptera; SYRPHIDAE; *Chrysotoxum*; *Xanthogramma*; *Chrysotoxum arcuatum*; *Chrysotoxum fasciatum*; *Chrysotoxum festivum*; *Xanthogramma festivum*; *Xanthogramma citrofasciatum*; hoverflies.

Ruling

- (1) Under the plenary power all previous fixations of type specimens are hereby set aside for the following nominal species:
 - (a) *arcuata* Linnaeus, 1758, as published in the binomen *Musca arcuata*, and the male specimen in The Natural History Museum, London, marked 'NEOTYPE, det. P.J. Chandler, 31.3.2000', collected from Voss, S.W. Norway, by A.E. Stubbs in 1977, is designated as the neotype;
 - (b) *festiva* Linnaeus, 1758, as published in the binomen *Musca festiva*, and the male specimen BM 1937-539 in The Natural History Museum, London, marked 'NEOTYPE, det. P.J. Chandler, 31.3.2000', collected from Schneverdingen, Lüneberg Heath, N. Germany, by T.H. Rowsell and B.J. Clifton in 1937, is designated as the neotype.
- (2) The following names are hereby placed on the Official List of Specific Names in Zoology:
 - (a) *arcuata* Linnaeus, 1758, as published in the binomen *Musca arcuata* and as defined by the neotype designated in (1)(a) above;
 - (b) *festiva* Linnaeus, 1758, as published in the binomen *Musca festiva* and as defined by the neotype designated in (1)(b) above;
 - (c) *citrofasciata* De Geer, 1776, as published in the binomen *Musca citrofasciata*.

History of Case 3090

An application for the conservation of the specific names of *Musca arcuata* Linnaeus, 1758, *M. festiva* Linnaeus, 1758 and *M. citrofasciata* De Geer, 1776 by the designation of neotypes for *M. arcuata* and *M. festiva* was received from Dr David A. Iiff (*Woodmancote, Cheltenham, Gloucestershire, U.K.*) and Dr Peter J. Chandler (*Burnham, Slough, Berkshire, U.K.*) on 8 April 1998. After correspondence the case was published in BZN 57: 87-93 (June 2000). Notice of the case was sent to appropriate journals.

Decision of the Commission

On 1 March 2001 the members of the Commission were invited to vote on the proposals published in BZN 57: 92. At the close of the voting period on 1 June 2001 the votes were as follows:

Affirmative votes — 20: Alonso-Zarazaga, Bock, Brothers, Calder, Cogger, Eschmeyer, Kerzhner, Kraus, Lamas, Macpherson, Mahnert, Martins de Souza, Mawatari, Minelli, Ng, Nielsen, Papp, Patterson, Rosenberg, Štys

Negative votes — none.

No votes were received from Bouchet, Dupuis and Song.

Ng commented: 'I am familiar with Linnaeus's material for some other arthropods and am aware that any set of specimens which does not carry data that they date from his 1758 work must be used with doubt and should not be regarded as types (para. 7 of the application). I sympathize with the applicants' problems and support their proposal to establish neotypes for *Musca arcuata* and *M. festiva* to maintain usage in these nominal taxa and in *M. citrofasciata*'.

Original references

The following are the original references to the names placed on an Official List by the ruling given in the present Opinion:

arcuata, *Musca*, Linnaeus, 1758, *Systema Naturae*, Ed. 10, vol. 1, p. 592.

citrofasciata, *Musca*, De Geer, 1776, *Mémoires pour servir à l'histoire des insectes*, vol. 6, p. 118.

festiva, *Musca*, Linnaeus, 1758, *Systema Naturae*, Ed. 10, vol. 1, p. 593.

OPINION 1983 (Case 3134)***Rana cryptotis* Boulenger, 1907 (currently *Tomopterna cryptotis*; Amphibia, Anura): specific name given precedence over that of *Chiromantis kachowskii* Nikolsky, 1900**

Keywords. Nomenclature; taxonomy; Amphibia; Anura; RANIDAE; *Chiromantis kachowskii*; *Tomopterna cryptotis*; burrowing frogs; sand frogs; Africa.

Ruling

- (1) Under the plenary power the name *cryptotis* Boulenger, 1907, as published in the binomen *Rana cryptotis*, is hereby given precedence over the name *kachowskii* Nikolsky, 1900, as published in the binomen *Chiromantis kachowskii*, whenever the two are considered to be synonyms.
- (2) The following names are hereby placed on the Official List of Specific Names in Zoology:
 - (a) *cryptotis* Boulenger, 1907, as published in the binomen *Rana cryptotis*, with the endorsement that it is to be given precedence over the name *kachowskii* Nikolsky, 1900, as published in the binomen *Chiromantis kachowskii*, whenever the two names are considered to be synonyms;
 - (b) *kachowskii* Nikolsky, 1900, as published in the binomen *Chiromantis kachowskii*, with the endorsement that it is not to be given priority over the name *cryptotis* Boulenger, 1907, as published in the binomen *Rana cryptotis*, whenever the two names are considered to be synonyms.

History of Case 3134

An application for the conservation of the specific name of *Rana cryptotis* Boulenger, 1907 by giving it precedence over that of *Chiromantis kachowskii* Nikolsky, 1900 when the two are treated as synonyms was received from Dr Malcolm J. Lagen (*Liverpool Museum, Liverpool, U.K.*) and Dr Leo J. Borkin (*Zoological Institute, Russian Academy of Sciences, St Petersburg, Russia*) on 26 February 1999. After correspondence the case was published in BZN 57: 32–35 (March 2000). Notice of the case was sent to appropriate journals.

Decision of the Commission

On 1 March 2001 the members of the Commission were invited to vote on the proposals published in BZN 57: 34. At the close of the voting period on 1 June 2001 the votes were as follows:

Affirmative votes — 18: Alonso-Zarazaga, Bock, Brothers, Calder, Cogger, Eschmeyer, Kerzhner, Kraus, Macpherson, Mahnert, Martins de Souza, Mawatari, Minelli, Nielsen, Papp, Patterson, Rosenberg, Štys

Negative votes — 3: Bouchet, Lamas and Ng.

No votes were received from Dupuis and Song.

Ng commented: 'A change of name from *Tomopterna cryptotis* (Boulenger, 1907) to *T. kachowskii* (Nikolsky, 1900) would not appear to have a major impact on

non-taxonomists so I am reluctant to set aside priority in this case. Also, since there is every chance that this is a species-group which includes at least one or two cryptic species and both names may be needed (para. 6 of the application), a Commission ruling seems superfluous'.

Original references

The following are the original references to the names placed on an Official List by the ruling given in the present Opinion:

cryptotis, *Rana*, Boulenger, 1907, *Annals and Magazine of Natural History*, (7)**20**: 109.
kachowskii, *Chiromantis*, Nikolsky, 1900, *Annuaire du Musée Zoologique de l'Académie Impériale des Sciences de St Pétersbourg*, **5**(1–2): 246. [In Russian and Latin].

OPINION 1984 (Case 3121)

Holochilus* Brandt, 1835, *Proechimys* J.A. Allen, 1899 and *Trinomys* Thomas, 1921 (Mammalia, Rodentia): conserved by the designation of *H. sciureus* Wagner, 1842 as the type species of *Holochilus

Keywords. Nomenclature; taxonomy; Mammalia; Rodentia; MURIDAE; ECHIMYIDAE; *Holochilus*; *Proechimys*; *Trinomys*; *Holochilus sciureus*; marsh rats; spiny rats; Central America; South America; neotropics.

Ruling

- (1) Under the plenary power all previous fixations of type species for the nominal genus *Holochilus* Brandt, 1835 are hereby set aside and *Holochilus sciureus* Wagner, 1842 is designated as the type species.
- (2) The following names are hereby placed on the Official List of Generic Names in Zoology:
 - (a) *Holochilus* Brandt, 1835 (gender: masculine), type species by designation under the plenary power in (1) above *Holochilus sciureus* Wagner, 1842;
 - (b) *Proechimys* J.A. Allen, 1899 (gender: masculine), type species by original designation *Echimyus trinitatis* J.A. Allen & Chapman, 1893;
 - (c) *Trinomys* Thomas, 1921 (gender: masculine), type species by original designation *Echimyus albispinus* I. Geoffroy Saint-Hilaire, 1838.
- (3) The following names are hereby placed on the Official List of Specific Names in Zoology:
 - (a) *sciureus* Wagner, 1842, as published in the binomen *Holochilus sciureus* (specific name of the type species of *Holochilus* Brandt, 1835);
 - (b) *trinitatis* J.A. Allen & Chapman, 1893, as published in the binomen *Echimyus trinitatis* (specific name of the type species of *Proechimys* J.A. Allen, 1899);
 - (c) *albispinus* I. Geoffroy Saint-Hilaire, 1838, as published in the binomen *Echimyus albispinus* (specific name of the type species of *Trinomys* Thomas, 1921).

History of Case 3121

An application for the conservation of the names *Holochilus* Brandt, 1835, *Proechimys* J.A. Allen, 1899 and *Trinomys* Thomas, 1921 by the designation of *H. sciureus* Wagner, 1842 as the type species of *Holochilus* was received from Dr Robert S. Voss (*American Museum of Natural History, New York, NY, U.S.A.* and Dr Nataliya I. Abramson (*Zoological Institute, Russian Academy of Sciences, St Petersburg, Russia*) on 26 February 1999. After correspondence the case was published in BZN 56: 255–261 (December 1999). Notice of the case was sent to appropriate journals.

Comments in support of the application from Dr Ulyses F.J. Pardiñas (*Museum de La Plata, La Plata, Argentina*), Dr Marisol Aguilera (*Universidad Simón Bolívar, Caracas, Venezuela*) and Prof James L. Patton (*Museum of Vertebrate Zoology,*

University of California, Berkeley, California, U.S.A.) were published in BZN 57: 118–119 (June 2000).

Decision of the Commission

On 1 March 2001 the members of the Commission were invited to vote on the proposals published in BZN 56: 258–259. At the close of the voting period on 1 June 2001 the votes were as follows:

Affirmative votes — 21: Alonso-Zarazaga, Bock, Bouchet, Brothers, Calder, Cogger, Eschmeyer, Kerzhner, Kraus, Lamas, Macpherson, Mahner, Martins de Souza, Mawatari, Minelli, Ng, Nielsen, Papp, Patterson, Rosenberg, Štys

Negative votes — none.

No votes were received from Dupuis and Song.

Original references

The following are the original references to the names placed on Official Lists by the ruling given in the present Opinion:

albispinus, *Echinmys*, I. Geoffroy Saint-Hilaire, 1838, *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences*, 6: 886.

Holochilus Brandt, 1835, *Mémoires de l'Académie Impériale des Sciences de Saint-Petersbourg*, (6)3(2), *Sciences Naturelles*, 1: 428.

Proechimys J.A. Allen, 1899, *Bulletin of the American Museum of Natural History*, 12: 264. [Issued in the serial in 1900 but published as a separate in 1899].

sciureus, *Holochilus*, Wagner, 1842, *Archiv für Naturgeschichte*, 8: 17.

trinitatis, *Echinmys*, J.A. Allen & Chapman, 1893, *Bulletin of the American Museum of Natural History*, 5: 223.

Trinomys Thomas, 1921, *Annals and Magazine of Natural History*, (9)8: 140.

OPINION 1985 (Case 3018)

***Cervus gouazoubira* Fischer, 1814 (currently *Mazama gouazoubira*; Mammalia, Artiodactyla): specific name conserved as the correct original spelling**

Keywords. Nomenclature; taxonomy; Mammalia; Artiodactyla; CERVIDAE; *Mazama gouazoubira*; brown brocket deer; South America.

Ruling

- (1) Under the plenary power it is hereby ruled that the correct original spelling of the name *gouazoupira* Fischer, 1814, as published in the binomen *Cervus gouazoupira*, is *gouazoubira*.
- (2) The name *gouazoubira* Fischer, 1814, as published in the binomen *Cervus gouazoubira* (spelling emended by the ruling in (1) above), is hereby placed on the Official List of Specific Names in Zoology.
- (3) The name *gouazoupira* Fischer, 1814, as published in the binomen *Cervus gouazoupira* (ruled in (1) above to be an incorrect original spelling of *gouazoubira*), is hereby placed on the Official Index of Rejected and Invalid Specific Names in Zoology.

History of Case 3018

An application for the conservation of the specific name of *Cervus gouazoubira* Fischer, 1814 was received from Dr A.L. Gardner (*U.S. Geological Survey, Patuxent Wildlife Research Center, National Museum of Natural History, Washington, DC, U.S.A.*) on 29 March 1996. After correspondence the case was published in BZN 56: 262–265 (December 1999). Notice of the case was sent to appropriate journals.

Comments in support of the application from Dr Robert S. Voss (*American Museum of Natural History, New York, NY, U.S.A.*) and from Dr Peter Grubb (*London, U.K.*) were published in BZN 57: 120–121 (June 2000).

Decision of the Commission

On 1 March 2001 the members of the Commission were invited to vote on the proposals published in BZN 56: 263. At the close of the voting period on 1 June 2001 the votes were as follows:

Affirmative votes — 21: Alonso-Zarazaga, Bock, Bouchet, Brothers, Calder, Cogger, Eschmeyer, Kerzhner, Kraus, Lamas, Macpherson, Mahnert, Martins de Souza, Mawatari, Minelli, Ng, Nielsen, Papp, Patterson, Rosenberg, Štys

Negative votes — none.

No votes were received from Dupuis and Song.

Original references

The following are the original references to the names placed on an Official List and an Official Index by the ruling given in the present Opinion:

gouazoubira, *Cervus*, Fischer, 1814, *Zoognosia. Tabulis synopticis illustrata*, vol. 3, p. 465 (incorrectly spelled as *gouazoupira*).

gouazoupira, *Cervus*, Fischer, 1814, *Zoognosia. Tabulis synopticis illustrata*, vol. 3, p. 465 (an incorrect original spelling of *gouazoubira*).

INFORMATION AND INSTRUCTIONS FOR AUTHORS

The following notes are primarily for those preparing applications to the Commission; other authors should comply with the relevant sections. Applications should be prepared in the format of recent parts of the *Bulletin*; manuscripts not prepared in accordance with these guidelines may be returned.

General. Applications are requests to the Commission to set aside or modify the Code's provisions as they relate to a particular name or group of names when this appears to be in the interest of stability of nomenclature. Authors submitting cases should regard themselves as acting on behalf of the zoological community and the Commission will treat all applications on this basis. Applicants should discuss their cases with other workers in the same field before submitting applications, so that they are aware of any wider implications and the likely reactions of other zoologists.

Text. Typed in double spacing, this should consist of numbered paragraphs setting out the details of the case and leading to a final paragraph of formal proposals to the Commission. Text references should give dates and pages in parentheses, e.g. 'Daudin (1800, p. 49) described . . .'. The Abstract will be prepared by the Commission's Secretariat.

References. These should be given for all authors cited. Where possible, ten or more reasonably recent references should be given illustrating the usage of names which are to be conserved or given precedence over older names. The title of periodicals should be in full and in italics; numbers of volumes, parts, etc. should be in arabic figures, separated by a colon from page numbers. Book titles should be in italics and followed by the number of pages and plates, the publisher and place of publication.

Submission of Application. Two copies should be sent to: Executive Secretary, the International Commission on Zoological Nomenclature, c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. It would help to reduce the time it takes to process the large number of applications received if the typescript could be accompanied by a disk with copy in IBM PC compatible format, or the script sent via e-mail to 'iczn@nhm.ac.uk' within the message or as an attachment (disks and attachments to be in Word, rtf or ASCII text). It would also be helpful if applications were accompanied by photocopies of relevant pages of the main references where this is possible.

The Commission's Secretariat is very willing to advise on all aspects of the formulation of an application.

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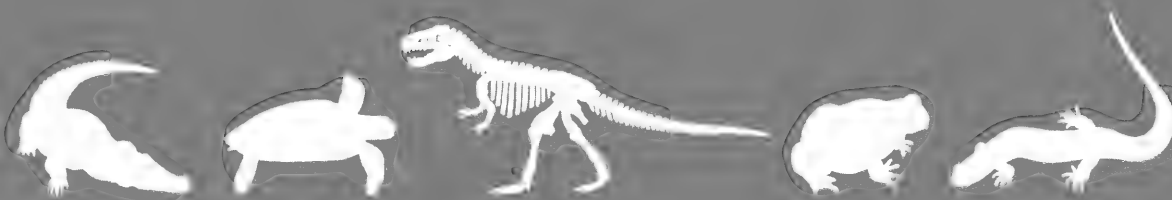


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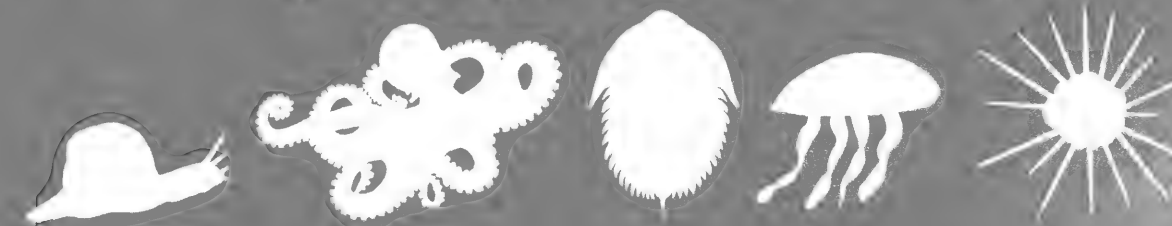
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BULLETIN OF ZOOLOGICAL NOMENCLATURE

Volume 58, part 4 (pp. 249–324)

19 December 2001

Notices

(a) *Invitation to comment.* The Commission is authorised to vote on applications published in the *Bulletin of Zoological Nomenclature* six months after their publication but this period is normally extended to enable comments to be submitted. Any zoologist who wishes to comment on any of the applications is invited to send his contribution to the Executive Secretary of the Commission as quickly as possible.

(b) *Invitation to contribute general articles.* At present the *Bulletin* comprises mainly applications concerning names of particular animals or groups of animals, resulting comments and the Commission's eventual rulings (Opinions). Proposed amendments to the Code are also published for discussion.

Articles or notes of a more general nature are actively welcomed provided that they raise nomenclatural issues, although they may well deal with taxonomic matters for illustrative purposes. It should be the aim of such contributions to interest an audience wider than some small group of specialists.

(c) *Receipt of new applications.* The following new applications have been received since going to press for volume 58, part 3 (published on 28 September 2001). Under Article 82 of the Code, existing usage is to be maintained until the ruling of the Commission is published.

Case 3212. *Thalassema taenioides* Ikeda, 1904 (currently *Ikeda taenioides*; Echiura): proposed conservation of the specific name. T. Nishikawa.

Case 3213. *Bothriurus alticola* Pocock, 1899 (currently *Orobothriurus alticola*; Arachnida, Scorpiones): proposed precedence of the specific name over the subspecific name of *Cercophonius brachycentrus bivittatus* Thorell, 1877. L.E. Acosta.

Case 3214. *Aegorhinus* Erichson, 1834 (Insecta, Coleoptera): proposed precedence over *Psuchocephalus* Latreille, 1828. M. Elgueta & G. Kuschel.

Case 3215. E.L. Holmberg (1917, 1918), *Las especies argentinas de Coelioxys* and supplements (Insecta, Hymenoptera): proposed suppression of 136 names published for 'grupos' and 'cohortes' of species. C.D. Michener.

Case 3216. *Spongia ventilabrum* Linnaeus, 1767 (currently *Phakellia ventilabrum*; Porifera): proposed conservation of the specific name. B. Alvarez & R.C. Willan.

Case 3217. *Scleritoderma* (Porifera): proposed attribution to Sollas, 1888, with *S. flabelliformis* Sollas, 1888 as the type species. A. Pisera & C. Lévi.

Case 3218. *Scottolana* Por, 1967 (Crustacea, Copepoda): proposed conservation, with the designation of *Sunaristes bulbosus* Por, 1964 as the type species. R. Huys.

Case 3219. *Vilcunia periglacialis* Cei & Scolaro, 1982 (currently *Liolaemus periglacialis*; Reptilia, Sauria): proposed conservation of the specific name. J.A. Scolaro & J.M. Cei.

(d) *Rulings of the Commission*. Each Opinion published in the *Bulletin* constitutes an official ruling of the International Commission on Zoological Nomenclature, by virtue of the votes recorded, and comes into force on the day of publication of the *Bulletin*.

Election of the President of the International Commission on Zoological Nomenclature

Professor Alessandro Minelli has completed his six-year term of office, and to succeed him as President the members of the Commission have elected Dr NEAL L. EVENHUIS, with effect from 17 November 2001.

Dr Evenhuis is the Chairman of the Department of Natural Sciences at the Bishop Museum, Honolulu, Hawaii, U.S.A. He has published extensively on the taxonomy and systematics of Diptera, and on the history and bibliography of this field.

Official Lists and Indexes of Names and Works in Zoology — Supplement 1986–2000

The volume entitled *Official Lists and Indexes of Names and Works in Zoology* (ISBN 0 85301 004 8) was published in 1987. It gave details of the names and works on which the Commission had ruled and placed on the Official Lists and Indexes since it was set up in 1895 through to the end of 1985. The volume contained 9917 entries, 9783 being family-group, generic or specific names and 134 relating to works.

In the 15 years between 1986 and the end of 2000 a further 601 Opinions and Directions have been published in the *Bulletin* listing 2371 names and 14 works placed on the Official Lists and Indexes. Details of these 2385 entries are given in a Supplement of 141 pages (ISBN 0 85301 007 2) published early in 2001. Additional sections include (a) a systematic index of names on the Official Lists covering both the 1987 volume and the Supplement; (b) a table correlating the nominal type species of genera listed in the 1987 volume with the valid names of those species when known to be different; and (c) emendments to the 1987 volume.

The cost of the 1987 volume and of the Supplement is £60 or \$110 each, and £100 or \$170 for both volumes ordered together.

Individual buyers of the volumes for their own use are offered a price of £50 or \$85 for each volume, and £90 or \$150 for both.

Individual members of the American or European Association for Zoological Nomenclature are offered a price of £45 or \$70 for each volume, and £80 or \$120 for both.

Prices include postage by surface mail; for Airmail, please add £3 or \$5 for each volume.

Copies may be ordered from: ITZN, c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk), or AAZN, Attn. D.G. Smith, MRC-159, National Museum of Natural History, Washington, D.C. 20560-0159, U.S.A. (e-mail: smith.davidg@nsmnh.si.edu).

Payment should accompany orders. Cheques should be made out to 'ITZN' (in sterling or dollars) or to 'AAZN' (in dollars only). Payment to ITZN (but not to AAZN) can also be made by Visa or MasterCard giving the cardholder's number, name and address and the expiry date.

The International Code of Zoological Nomenclature

The new and extensively revised 4th Edition of the *International Code of Zoological Nomenclature* (ISBN 0 85301 006 4) was published (in a bilingual volume in English and French) in August 1999. It came into effect on 1 January 2000 and entirely supersedes the 3rd (1985) edition.

The price of the English and French volume of the 4th Edition is £40 or \$65; the following discounts are offered:

Individual members of a scientific society are offered a discount of 25% (price £30 or \$48); the name and address of the society should be given.

Individual members of the American or European Associations for Zoological Nomenclature are offered a discount of 40% (price £24 or \$39).

Postgraduate or undergraduate students are offered a discount of 25% (price £30 or \$48); the name and address of the student's supervisor should be given.

Institutions or agents buying 5 or more copies are offered a 25% discount (price £30 or \$48 for each copy).

Prices include surface postage; for Airmail please add £2 or \$3 per copy.

Copies may be ordered from: ITZN, c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk), or AAZN, Attn. D.G. Smith, MRC-159, National Museum of Natural History, Washington, D.C. 20560-0159, U.S.A. (e-mail: smith.davidg@nsmnh.si.edu).

Payment should accompany orders. Cheques should be made out to 'ITZN' (in sterling or dollars) or to 'AAZN' (in dollars only). Payment to ITZN (but not to AAZN) can also be made by Visa or MasterCard giving the cardholder's number, name and address and the expiry date.

Individual purchasers of the Code are offered a 50% discount on the following publications for personal use:

Towards Stability in the Names of Animals — a History of the International Commission on Zoological Nomenclature 1895–1995 (1995) — reduced from £30 to £15 and from \$50 to \$25;

The Bulletin of Zoological Nomenclature (the Commission's quarterly journal) — discount valid for up to four years; for 2001 the discounted price would be £57 or \$105.

International Trust for Zoological Nomenclature

Financial Report for 2000

The Trust's surplus of £15,430 for 2000 was due entirely to the sales amounting to £37,891 of the 4th edition of the *International Code of Zoological Nomenclature*. More than 2500 copies of the English/French edition of the *Code* were sold or distributed during the year, and editions in German, Japanese, Russian and Spanish, yielding royalties of £5138, were published or were nearing completion. Income from other publications — the *Bulletin of Zoological Nomenclature*, the *Official Lists and Indexes*, the Centenary History of the Commission — amounted to £29,234, and £7300 received from donations, were both similar to the amounts received in 1999. Interest and investment income of £10,386 brought the total income for the year to £89,949.

The main expenditures in 2000 were £60,361 for the salaries, fees and National Insurance of the Secretariat of the International Commission on Zoological Nomenclature, and £11,162 for printing the *Bulletin of Zoological Nomenclature* and the distribution of all publications. Other costs of £1239 for a meeting of the International Commission on Zoological Nomenclature in Athens, £1292 for office expenses and £465 for depreciation of office equipment brought the total expenditure to £74,519.

The main work of the Commission during the year was on applications from zoologists in 19 countries to resolve problems of zoological nomenclature. These were published in the *Bulletin of Zoological Nomenclature*, together with Opinions (rulings) made by the Commission on other cases. Further applications were under consideration. Advice was given by the Commission's Secretariat in response to a large number of informal enquiries on matters of nomenclature from zoologists worldwide.

The Secretariat of the Commission was again housed in The Natural History Museum, London, whom we thank for their continuing support. The Trust wishes to express its thanks to all the donors listed below who contributed to its work during the year. Continuation of the work of the Trust for the international zoological and palaeontological community is only possible because of the support received from its donors.

M.K. HOWARTH
Secretary and Managing Director
3 April 2001

List of donations and grants received during the year 2000

American Association for Zoological Nomenclature	£4039
Canadian Society of Zoologists	83
International Union of Biological Sciences	1227
Japanese Society of Systematic Zoology	258
Royal Entomological Society of London	150
Russian Academy of Sciences	1133

St John's College, Cambridge
 Zoological Society of London

250

160

 Total £7300

**INTERNATIONAL TRUST FOR ZOOLOGICAL NOMENCLATURE
 INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED
 31 DECEMBER 2000**

Income

SALE OF PUBLICATIONS

Bulletin of Zoological Nomenclature	£28160
International Code of Zoological Nomenclature	37891
Royalties on Code	5138
Official Lists and Indexes	623
Centenary History	451

 72263

GRANTS AND DONATIONS

7300

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10386

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11162

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Phylogenetic Nomenclature and the PhyloCode

Kevin de Queiroz

Department of Systematic Biology, National Museum of Natural History, Smithsonian Institution, Washington, DC 20560–0162, U.S.A.

Philip D. Cantino

Department of Environmental and Plant Biology, Ohio University, Athens, OH 45701–2979, U.S.A.

In a recent paper Forey (2001; BZN 58: 81–96) provided a description of the draft Phylogenetic Code of Biological Nomenclature (PhyloCode; <http://www.ohiou.edu/phylocode/>), followed by a largely negative commentary. Several of Forey's criticisms of the system of phylogenetic nomenclature embodied in the PhyloCode stem from misunderstandings about that system, and several confuse taxonomic with nomenclatural issues. In fact, the PhyloCode would regulate the naming of taxa and the subsequent application of taxon names in ways that are thoroughly consistent with the taxonomic approach that he advocates. In this essay, we comment upon some aspects of Forey's description of the draft PhyloCode, and we explain why none of his criticisms represent serious problems.

Forey's Part 1 (Goals and Mechanics of the PhyloCode)

Part 1 of Forey's paper was intended to provide readers with an impartial description of the goals and mechanics of the PhyloCode. This section is largely accurate but omits some important issues, which we would like to describe, and contains some misleading statements, which we would like to clarify.

Motivation for the PhyloCode

One important topic omitted by Forey is a discussion of the pragmatic issues that motivated development of the PhyloCode. The PhyloCode is designed to make explicit the reference of taxon names to clades, and thereby bring the subsequent application of taxon names into line with contemporary (i.e. evolutionary) conceptualizations of taxa (de Queiroz & Gauthier, 1994; de Queiroz, 1997). In so doing, it simplifies the process of naming clades and thereby facilitates communication about phylogeny. The need for an effective and efficient system for naming clades is particularly urgent now, as the unprecedented progress in phylogenetics in the past decade is likely to accelerate even further in the coming years, and the current system of nomenclature, as embodied in the International Code of Zoological Nomenclature (Zoological Code) and its botanical and bacteriological counterparts, is poorly suited to govern clade names. Under the current system, authors use the same names for different clades, and different names for the same clade, even when there is no disagreement about relationships and composition (de Queiroz & Gauthier, 1994; de Queiroz, 1997). Moreover, many newly discovered clades, even well-supported ones, are currently left unnamed, at least in part because it is often difficult: (1) to name clades one at a time (in the way that species are named as they are discovered) without having to develop an entire new classification and thus change the names of

other clades (Kron, 1997; Hibbett & Donoghue, 1998), and (2) to name those clades that one wants to name without having to recognize groups that one does not want to recognize (Cantino, 2000).

The feature of the traditional system that underlies all of these problems is the link between names and ranks. Because of this link, authors who agree about the relationships and composition of clades but disagree about ranks will use different names for the same clade and the same name for different clades. Moreover, because a clade must be given a rank in order to name it, naming a newly discovered clade under the Zoological Code may require developing a new classification, which authors may be reluctant to do. The ranks of all taxa in a classification are interdependent. Therefore, depending on the availability of unoccupied ranks, naming a new clade may cause a cascade of name changes at higher or lower levels in the hierarchy when clades that include or are included within the newly discovered clade shift in rank and must therefore be renamed (Kron, 1997; Hibbett & Donoghue, 1998). Finally, because the genus rank is mandatory, and others (e.g. family) are treated by convention as though they were mandatory, naming a new clade may necessitate naming other taxa at the same rank even though one does not accept those taxa because they are paraphyletic, redundant (monotypic), or poorly supported (Cantino et al., 1999; Cantino, 2000). Under the PhyloCode, these problems do not exist because taxonomic rank has no bearing on the spelling or application of names. Instead, names are linked directly and explicitly to clades through phylogenetic definitions.

Similarities and differences between traditional (rank-based) and phylogenetic nomenclature

Another important issue not discussed by Forey concerns the fundamental similarities and differences between the PhyloCode and the Zoological Code (and the other codes of rank-based nomenclature). Regarding similarities, the PhyloCode has the same general goals as the Zoological Code, namely, the provision of rules for naming taxa and applying existing names in new taxonomic contexts so that the names of taxa, and the application of names, will be unambiguous within a given taxonomic context. In addition, the PhyloCode is like the Zoological Code in attempting to promote stability and universality in the names of taxa and the application of names, so far as that is possible given that both codes permit disagreements concerning taxonomic hypotheses. Moreover, the PhyloCode accomplishes these goals using the same general mechanisms as in the Zoological Code, that is, by establishing precedence (an order of preference) among synonyms or homonyms, which is normally based on priority of publication (seniority) but which allows for exceptions (usually through rulings by a commission or committee) in cases when using priority to determine precedence would compromise nomenclatural stability or universality.

The main difference between the PhyloCode and the Zoological Code concerns the manner in which names are linked to taxa. In both cases, names are linked to taxa using definitions, but differences between the types of definitions used under the two codes result in differences in how names are applied in new taxonomic contexts and thus which names are regarded as synonyms. (It should be noted that the definitions referred to here are statements specifying how names are to be applied, as opposed

to statements describing the characters of the taxa to which the names refer.) Forey described three categories of phylogenetic definitions (the type of definitions used in the PhyloCode), and illustrated how a particular name ('Aves') might be defined using definitions in each of the three categories (i.e. node-based, stem-based, and apomorphy-based). He did not, however, describe the rank-based definitions used in traditional nomenclature. This omission is important both because rank-based definitions, though they are the foundation of the Zoological Code and other traditional codes, are not described explicitly in those codes (instead, their use is implied by the way traditional nomenclature works), and because the difference between rank-based and phylogenetic definitions is the most fundamental difference between traditional and phylogenetic nomenclature.

In contrast with phylogenetic definitions, which are based on the phylogenetic relationships of designated specifiers (e.g. 'Aves' is the name of the least inclusive clade containing (say) *Struthio camelus* and *Corvus corax*), traditional definitions are based on the ranks of taxa containing designated types. Thus, to use the same name used by Forey in his examples, 'Aves' is the name of the class containing (say) *Corvus corax*. This example is, of course, hypothetical, since the Zoological Code does not extend its principle of typification (and thus its method of definition) to names above the level of the family group. To use a real example, 'Corvidae' is the name of the family containing *Corvus*. The fundamental difference between phylogenetic and traditional definitions results in an important difference regarding the associations between names and clades. Phylogenetic definitions tie names directly to clades; in contrast, traditional definitions tie names to clades only indirectly through the ranks to which the clades are assigned. The most important consequence of this difference is that names in phylogenetic nomenclature are more strongly tied to clades than to ranks (i.e. in the face of changing taxonomic proposals), while in traditional nomenclature the reverse is true – names are more strongly tied to ranks than to clades (de Queiroz, 1997). This difference underlies both the problems with traditional nomenclature and the advantages of phylogenetic nomenclature described in the previous section.

Phylogenetic definitions and specifiers

Regarding definitions, a few statements in Forey's Part 1 are potentially misleading. On p. 84, Forey stated (para. 3) that specifiers (species, specimens, or apomorphies cited in a phylogenetic definition to specify the clade to which the name applies) '*serve exactly the same function as Linnaean types except their characters do not define the clade*'. There are two ways in which this statement may be misleading. First, while it is true that the specifiers of phylogenetic nomenclature and the name-bearing types of traditional nomenclature both serve as reference points for the application of names, there are also differences in their functions. The most fundamental difference is that specifiers are so called because they specify the taxon to which a name refers. Thus, the specifiers of phylogenetic nomenclature are used, as parts of phylogenetic definitions, to specify particular clades. In contrast, in traditional nomenclature types do not, by themselves, specify particular taxa (clades or otherwise) because several nested taxa may contain a given type. A rank is needed to restrict the reference of the name to one of the several nested taxa containing that type, and thus, in one sense, the specifiers of traditional nomenclature are both types

and ranks. However, in another sense, traditional definitions do not really specify particular taxa (i.e. 'taxonomic taxa' in the sense of the Zoological Code—that is, taxa that are conceptualized in terms of composition, characters, or relationships, rather than solely in terms of a rank and a type), because a given name can be applied to any one of several taxa in a nested series, depending on which one is assigned the specified rank. In this sense, types are not really specifiers at all. Therefore, regardless of whether taxa are conceptualized solely in terms of ranks and types, types are not functionally equivalent to specifiers.

Another difference between types and specifiers (related to the fundamental difference described above) is that single types are used in traditional definitions while, in contrast, multiple specifiers are required in phylogenetic definitions. Furthermore, under the traditional codes, the type used to define a name in the family group provides the stem of the name of the taxon of which it is the type (e.g. Zoological Code, Article 29). In contrast, under the PhyloCode, (1) the specifiers used to define clade names need not provide the stem of the name of the specified clade (e.g. neither *Struthio camelus* nor *Corvus corax* provide the stem of the name 'Aves' in the above example), (2) one or more of the specifiers can serve this function (e.g. *Corvus corax* for 'Corvidae'; *Gallus gallus* and *Anser anser* for 'Galloanserae'), and (3) when a specifier provides the stem of a clade name, it does so regardless of rank.

An additional problem is that Forey's statement could be interpreted as implying that the characters of types define clade names while those of specifiers do not. In fact, the characters of neither types nor specifier species or specimens define the names of clades. In the case of types, a clade name is defined in terms of the rank of the group that contains the type, rather than the characters of the type (e.g. Corvidae = the family containing *Corvus*). In the case of specifier species or specimens, a clade name is defined in terms of the relationships of the specifiers, rather than their characters (e.g. Corvidae = the least inclusive clade containing (say) *Corvus corax* and *Platylophus galericulatus*). The only characters that are used to define clade names are specifier apomorphies, which are used in apomorphy-based phylogenetic definitions (e.g. Diapsida = the clade stemming from (say) the first amniote to evolve two temporal fenestrae homologous with those in *Sphenodon punctatus*) but not in the rank-based definitions of traditional nomenclature. Of course, regardless of whether one adopts traditional or phylogenetic nomenclature (and regardless of the type of phylogenetic definition used), the relationships and composition of taxa are inferred using characters. This, however, is a taxonomic rather than a nomenclatural issue.

Compositional changes and nomenclatural stability

Although Forey's Part 1 was intended to be impartial in its portrayal of the PhyloCode, a subtle bias was introduced through his choice of examples (see particularly his Fig. 2), all of which concern taxa ranked above the level of the family group. The names of such taxa are not defined (i.e. according to rank and type) and, for the most part, are not regulated by the Zoological Code. Consequently, Forey implicitly contrasted the ramifications of the PhyloCode not with those of the Zoological Code but with the more or less total nomenclatural freedom that would exist in the absence of any code. Most of the rank-based problems cited above, which come into play when taxon names are defined according to rank and type, do not

apply to the names of zoological taxa at ranks above the family group, where the principle of typification does not extend. As a result, readers of Forey's paper who might not like the changes in taxon composition that occur when names are applied in the context of different phylogenetic hypotheses under the PhyloCode (Forey's Fig. 2) might overlook the fact that similar changes in taxon composition occur under the traditional codes (de Queiroz, 1997). Changing ideas about phylogeny cause changes in the hypothesized composition of taxa under both systems, but under the Zoological Code, unlike the PhyloCode, additional instability in the names of clades and the membership of taxa results from changes in rank (i.e. through 'lumping' and 'splitting') even when ideas about phylogeny are stable (de Queiroz, 1996, 1997; Bryant & Cantino, in press). Furthermore, with regard to zoological names above the level of the family group, the PhyloCode will increase nomenclatural stability. Currently, no code governs the definition and application of these names, and thus, there is nothing to prevent the capricious renaming of clades – that is, the replacement of existing names with unnecessary substitute names.

The primary function of taxon names

Forey's discussion (p. 85) of PhyloCode Principle 1 suggests a misunderstanding of its intent. Principle 1 states that '*the primary purpose of taxon names is to provide a means of referring to taxa, as opposed to indicating their characters, relationships, or membership*'. This statement is adapted from item 1 in the Preamble of the International Code of Botanical Nomenclature. Its purpose is to describe the principle that although taxon names often describe the characters (e.g. Gnathostomata = jaw mouth), relationships (e.g. *Paradipsosaurus* = near *Dipsosaurus*), or membership (e.g. Galloanserae = Galliformes plus Anseriformes) of the taxa to which they refer, conveying such information is a secondary function of taxon names; the primary function is to supply a means of referring to taxa. Consequently, the PhyloCode does not permit rejection of a name simply because the name does not accurately describe the characters, relationships, or composition of the taxon to which it refers. The same is true under the Zoological Code (see Article 18). Thus, *Paradipsosaurus* is still the valid name of a taxon, even though that taxon is no longer thought to be closely related to *Dipsosaurus* (Estes, 1983).

It appears that Forey misinterpreted Principle 1 by confusing taxonomic and nomenclatural issues. He quoted that principle in three successive paragraphs (p. 85) to point out three different properties of phylogenetic nomenclature: (1) that '*a shift in taxon membership with changing ideas of phylogeny is perfectly acceptable to the PhyloCode*'; (2) that '*ideas of relationships can vary substantially . . . but . . . there will always be some position . . . on a phylogeny where [a name] will apply*'; and (3) '*a name is applied to a phylogeny without reference to why that phylogeny should have been chosen*'. Forey described these properties as if they were undesirable, but all three are also properties of traditional nomenclature (or at least have analogs therein). Thus, in traditional nomenclature: (1) changes in taxon membership often result from changing ideas about phylogeny; (2) ideas about relationships can vary substantially, but certain names will always apply to some taxon, and (3) names can be applied in the context of a taxonomic proposal without reference to the justification for adopting that proposal. All of these properties, which are common to both traditional and phylogenetic nomenclature, are related to the basic principle that

nomenclatural codes do not infringe upon taxonomic judgement but only regulate the application of names (Zoological Code, Principles 1 and 2; PhyloCode, Principle 6). These properties are neither unique to phylogenetic nomenclature nor problematical.

Synonymy

Another point of confusion in Forey's Part 1 concerns synonymy. Forey stated (p. 87) that under the PhyloCode '*With regard to synonymy there is the possibility of two names specifying the same taxon but since they may be defined in different ways (e.g. stem- and node-based) they may both be valid*'. To support this conclusion, Forey cited PhyloCode Note 14.1.2, which reads: '*Node-based, apomorphy-based, and stem-based definitions (Note 9.4.1) usually designate different clades, although they may be nested clades that differ only slightly in inclusiveness. Therefore names based on two or more of these different kinds of definitions are usually not synonyms*'. The qualifier 'usually' was included to cover the rare possibility that names defined using different kinds of phylogenetic definitions might refer to the same clade (e.g. if the apomorphy specified in an apomorphy-based definition originated (or became fixed) at precisely the same moment as the divergence (from its sister lineage) of the stem lineage specified by a stem-based definition). However, in this rare event, the names in question would be synonyms despite their being based on different types of definitions (such 'hetero-definitional synonyms' are analogous to names that the Zoological Code terms 'subjective synonyms' in that the conclusion that they refer to the same taxon depends on a taxonomic judgement). According to the PhyloCode (Principle 3 and Article 14.2), if two names denote the same taxon, then they are synonyms and cannot both be valid (in the terminology of the Zoological Code = 'accepted' in the terminology of the PhyloCode). Thus, although Forey is correct in pointing out that names defined using different types of phylogenetic definitions can sometimes refer to the same taxon, he is incorrect in stating that more than one such name can be valid.

Forey's Part 2 (Commentary)

The second part of Forey's essay is explicitly critical of phylogenetic nomenclature and the PhyloCode. Forey's criticisms, however, either misrepresent the PhyloCode or are no more problematical for phylogenetic nomenclature than for its traditional counterpart. In this section, we address each of Forey's criticisms and show that phylogenetic nomenclature stands up to every one.

Taxonomic ranks

In the introduction to his commentary (pp. 88–89), Forey incorrectly implied that phylogenetic nomenclature and the PhyloCode require the abolition of taxonomic ranks. Although it is true that some advocates of phylogenetic nomenclature favor the abolition of ranks and that the nomenclatural system described by the PhyloCode is rankless (Article 3.1), adoption of phylogenetic nomenclature and the PhyloCode does not require the elimination of ranks. The statement that the system of nomenclature is rankless does not mean that taxa cannot be assigned to ranks (de Queiroz, 1997); instead, it means only that '*assignment of a categorical rank (e.g. genus, family, etc.) is not part of the formal naming process and has no bearing on the spelling or application of taxon names*' (Article 3.1). In other words, if a name refers

to a clade, then changing the rank of that clade does not cause a change in its name (de Queiroz, 1997). Under the traditional system, changing the rank of a taxon from family to subfamily, for example, requires a change in the name of that taxon (e.g. from 'Corvidae' to 'Corvinae'). Under the PhyloCode, the same change in rank would not result in a name change. In any case, the PhyloCode does not prohibit the use of ranks, and therefore, Forey's concerns about its effect on the assessment of biodiversity are unfounded. Biologists will still be able to rank taxa, if they so desire, and thus to count numbers of taxa at particular ranks.

On the other hand, there are problems with these simple counts of equally ranked taxa. For one thing, such counts generally do not distinguish between monophyletic and paraphyletic taxa (Smith & Patterson, 1988; Smith, 1994). Moreover, it is widely acknowledged that taxa of the same rank generally are not comparable with respect to any biologically significant property, such as age, number of species, or disparity (Hennig, 1966; Mayr, 1969; Mayr & Ashlock, 1991), and that rank assignment is largely subjective, varying from one taxonomist to another (Simpson, 1961; Mayr & Ashlock, 1991). The PhyloCode's de-emphasis on ranks permits (without requiring) the abandonment of ranks and thus encourages biologists to develop more meaningful ways of assessing diversity. One obvious possibility is to count numbers of species (i.e. separately evolving lineages). Another possibility is to count the number of mutually exclusive clades possessing properties that are relevant to the question being addressed. For example, one might count the (minimum or maximum) number of non-nested clades that originated or became extinct in a particular time period, or the number that are characterized by organisms exhibiting different natural history strategies with regard to reproduction (e.g. oviparous, viviparous), feeding (e.g. carnivorous, herbivorous), metabolism (e.g. ectothermic, endothermic), etc. To assess overall similarity or disparity, multivariate measures can be used (e.g. Foote, 1995) rather than using subjectively assigned ranks. And, in biodiversity inventories, organisms that cannot be assigned to a species can still be assigned to more inclusive clades, regardless of whether those clades are ranked. In short, the PhyloCode's de-emphasis on ranks, rather than hindering studies of biodiversity, might actually contribute to the development of improved methods for such studies.

Annotated Linnaean systems

Because ranking is often associated with the recognition of paraphyletic taxa, Forey himself has '*some sympathy*' (p. 89) for the development of rank-free approaches. On the other hand, he believes that '*there are ways around the problem which do not involve the adoption of a PhyloCode*' (p. 89, para. 2), specifically '*the annotated Linnaean system*' (p. 89) developed by authors such as Nelson (1973), Patterson & Rosen (1977), and Wiley (1979). Forey's statements are misleading on several counts, which (in addition to resting on the incorrect premise that phylogenetic nomenclature prohibits the use of ranks) result from his not distinguishing consistently between taxonomy and nomenclature. First, although it is true that paraphyletic taxa can be eliminated and the relationships of monophyletic taxa can be conveyed using annotated Linnaean systems, these are taxonomic solutions that are logically and pragmatically separate from the nomenclatural problems that the PhyloCode is designed to solve. Rather than being designed to convey the relationships of monophyletic taxa (clades), the PhyloCode is designed to prevent

unnecessary changes in the associations between taxon names and clades that result under the Zoological Code from changes in taxonomic ranks. This nomenclatural problem is not addressed by the annotated Linnaean system advocated by Forey, which consists of conventions – such as phyletic sequencing (Nelson, 1973) and the plesion category (Patterson & Rosen, 1977) – designed to reduce the proliferation of taxonomic ranks, as well as other conventions for representing polytomies, uncertain placement within a larger clade, non-monophyletic groups, ancestors, taxa of hybrid origin, and distinctiveness (Wiley, 1979, 1981). Most of these conventions are taxonomic rather than nomenclatural in nature and are compatible with both traditional and phylogenetic nomenclature. In any case, they do not solve the problem of rank changes causing name changes.

It is worth pointing out that several of the conventions of the annotated Linnaean system advocated by Forey de-emphasize the use and importance of ranks and might therefore be considered to anticipate the development of phylogenetic nomenclature in this regard (de Queiroz, 1997). For example, the sequencing convention (Nelson, 1974) uses the sequence of taxon names in a list, rather than ranks, to convey information about relationships. Similarly, the plesion, a category used for extinct taxa regardless of their position in the taxonomic hierarchy, is basically a rankless category. It might even be argued that the plesion category is incompatible with traditional nomenclature, given that it is rankless and that ranks are necessary for traditional nomenclature. In short, the conventions advocated by Forey do not constitute an alternative to the PhyloCode; instead, most are taxonomic conventions the use of which is entirely compatible with phylogenetic nomenclature.

Types and specifiers

Forey argued (p. 89) that there is no fundamental difference between the specifiers of the PhyloCode and the name-bearing types of traditional nomenclature and that the replacement of types by specifiers in the PhyloCode is therefore unnecessary. As explained above (see *Phylogenetic definitions and specifiers*), types and specifiers have both similarities and differences, though the concept of a specifier is more general than the concept of a type. Thus, specifiers include not only specimens and taxa, but also apomorphies in phylogenetic nomenclature and ranks in traditional nomenclature. Some other differences are as follows. (1) Although both specifiers and types serve as reference points for the application of names, the use of multiple reference points (specifiers) is necessary in phylogenetic nomenclature because a single specimen or subordinate taxon cannot unambiguously specify a clade in the way that a single type can unambiguously specify a ranked taxon. (2) Types are necessarily included within the taxon whose name they are used to define, while in stem-based phylogenetic definitions, some specifiers (called 'external specifiers' in the PhyloCode) are necessarily excluded from the specified clade (as noted by Forey on p. 84). (3) In contrast with the rule of the Zoological Code that the name of a taxon in the family group must be formed from the stem of the name of the type genus, the PhyloCode does not require that the name of a clade be formed from the stem of the name of one of the specifiers used to define that name. Given these differences between types and specifiers, introduction of the new term 'specifier(s)' in the PhyloCode is appropriate.

When to name

Forey made much of the statement in the PhyloCode Preface that '*Criteria that influence the decision whether to name a clade include level of support, phenotypic distinctiveness, economic importance, etc.*'. He referred (p. 90) to this as a 'recommendation' of the PhyloCode and concluded that '*advocates of phylogenetic taxonomy really do not have any more precise reasons for naming a group than do followers of Linnaean Taxonomy and to include advice in the PhyloCode registers a precision which is both unnecessary and undesirable*'. This criticism is misdirected. For one thing, advocates of phylogenetic nomenclature do not claim to have more precise or objective reasons for naming taxa than do practitioners of traditional nomenclature. Such decisions are taxonomic, not nomenclatural, and therefore are beyond the scope of both the PhyloCode and the Zoological Code. Moreover, contrary to Forey's assertion, the PhyloCode does not include advice about when to name a clade. The statement that he quoted is in the Preface, and although there are many formal recommendations in the PhyloCode itself, this is not one of them. It was included in the Preface simply to elaborate on the preceding statement that not all clades need be named. Furthermore, it is difficult to see how the statement itself, which lists only very general criteria and ends in 'etc.', conveys an unwarranted level of precision. It should be apparent from both the context and the wording that none of the cited criteria is definitive, and that the list is not exhaustive. The listed criteria are simply examples of criteria that would generally be considered when one is deciding whether to name a clade.

In this context, Forey's criticisms of the specific criteria lose their force. The PhyloCode is entirely neutral regarding the various measures of support that he lists (number of synapomorphies, Bremer support, bootstrap proportions, etc.); what is considered an adequate level of support is a taxonomic issue that is to be decided by the individual systematist. The same holds for levels of phenotypic distinctiveness and economic importance. Incidentally, Forey's point that the criterion of phenotypic distinctiveness implicitly advocates use of apomorphy-based definitions but that '*apomorphy-based naming is less favoured than the other two [kinds of] definitions*' (p. 90) is both questionable and irrelevant. For one thing, at least some PhyloCode proponents have argued for the use of apomorphy-based definitions (e.g. Pleijel, 1999; Lee, 2001; see also Gauthier & de Queiroz, 2001). Moreover, regardless of the types of phylogenetic definitions favored by individual systematists; there is nothing in the PhyloCode indicating that one kind of definition is preferred over others.

Compositional stability

In his section entitled '*How to name*', Forey first argued (p. 91) that phylogenetic nomenclature is '*curiously illogical*' in attempting to choose definitions that will promote stability in the composition of taxa given that '*taxonomic content is not the primary purpose of Phylogenetic Nomenclature* (PhyloCode, Division 1. Principles)'. His argument, however, is based on his misinterpretation of PhyloCode Principle 1 (see *The primary function of taxon names*), which does not state that compositional stability is unimportant but only that the primary purpose of taxon names is to refer to taxa rather than to describe (i.e. through the meanings of the words from which the name is formed) their composition (or characters or relationships). Forey then

correctly noted that stability in taxon composition will depend on the stability of the phylogenetic hypothesis, but then he reiterated his irrelevant complaint that '*Phylogenetic Nomenclature is mute in offering guidelines since there are no agreed criteria [for assessing support]*', concluding (again correctly) that although the name itself may remain stable, the composition of the taxon to which it refers '*may be decidedly unstable*'. As we argued above (see *When to name*), the issue of support is a taxonomic rather than a nomenclatural issue. In addition, neither traditional nor phylogenetic nomenclature can guarantee compositional stability. On the other hand, under phylogenetic nomenclature, changes in taxon composition result *only* from changes in hypotheses about phylogenetic relationships, while under traditional nomenclature, such changes can result *both* from changes in phylogenetic hypotheses *and* from changes in rank assignments, and the latter can occur even when ideas about phylogenetic relationships remain unchanged (de Queiroz, 1997). Moreover, phylogenetic definitions can be worded so as to limit potential changes in taxon composition (see PhyloCode Article 11.9), an option that is unavailable under the Zoological Code. Thus, far from highlighting shortcomings of phylogenetic nomenclature, the issue of compositional stability reveals significant advantages of that approach.

Nomenclatural stability

Later in his section titled '*How to name*', Forey argued (p. 91) that PhyloCode rules regarding conservation can lead to instability in names (as opposed to taxon composition). In his hypothetical example, identical definitions are given to the names 'Sarcopterygii' and 'Gnathostomata', followed by conservation of 'Sarcopterygii' and redefinition of 'Gnathostomata', so that the application of the name 'Gnathostomata' is unstable. This example is flawed in several ways. First, under the PhyloCode, the establishment of different names with identical definitions will be very unlikely to occur because all names and their definitions will be registered (see Article 8). The implementation of the PhyloCode will coincide with the establishment of a registration database, which will be accessible through the Internet. In addition to providing a useful entry to the literature relevant to particular names, this database will make it very easy for authors to avoid accidentally publishing homodefinitional synonyms (i.e. the sort in Forey's example) and homonyms. An author who proposed to give the name 'Sarcopterygii' the same definition that had previously been published for 'Gnathostomata' would have to register the name and definition, and the registration number would have to be included in the publication, in order for the name to be established under the PhyloCode (i.e. be 'available' in the terminology of the Zoological Code). If a definition submitted for registration were identical to one that had previously been registered, the submitting author would be notified (see PhyloCode Appendix A). It is very unlikely that the author would then proceed to publish that definition, knowing that it could never be accepted (i.e. be 'valid' in the terminology of the Zoological Code) unless it were conserved by the International Committee on Phylogenetic Nomenclature (ICPN).

On the other hand, suppose that the earliest phylogenetic definition of the name 'Gnathostomata' (e.g. the least inclusive clade containing the specifiers coelacanth and frog, symbolized 'clade (coelacanth + frog)' though under the PhyloCode one would use scientific names of species for the specifiers) were highly inconsistent with

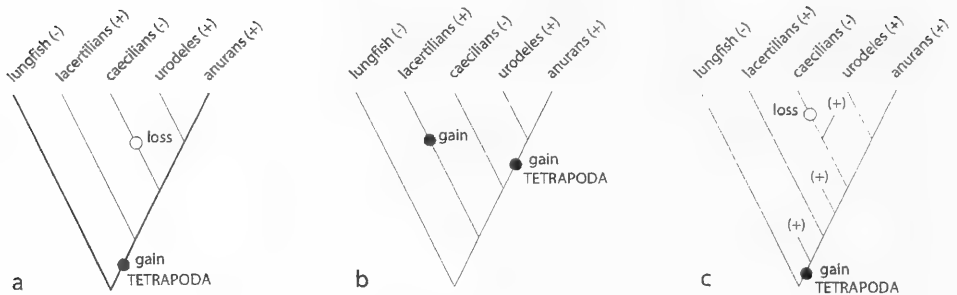


Figure 1. Alternative equally parsimonious character optimisations and their bearing on an apomorphy-based phylogenetic definition. In this example, the name 'Tetrapoda' is defined as referring to the clade of all animals with fingers and toes homologous (synapomorphic) with those in *Rana esculenta* (a member of the group anurans). Plus ('+') and minus ('-') signs indicate the presence and absence of the character, respectively. (a) Under the accelerated transformation optimisation procedure, the name 'Tetrapoda' refers to a clade that includes anurans, urodeles, caecilians and lacertilians. (b) Under the delayed transformation optimisation procedure, the name 'Tetrapoda' refers to a clade that includes anurans and urodeles but not lacertilians and caecilians. (c) When additional taxa are taken into consideration (short branches with plus ('+') signs indicating the possession of finger and toes), only a single most parsimonious optimisation exists (i.e. under both accelerated and delayed transformation) and the name 'Tetrapoda' refers to a clade that includes anurans, urodeles, caecilians, lacertilians and various other taxa.

prevailing use and ended up referring to a taxon that had traditionally been called 'Sarcopterygii' (as in Forey's hypothetical example). Under these circumstances, an author might purposely publish the same definition (i.e. clade (coelacanth + frog)) for the name 'Sarcopterygii' and then apply for conservation. If the ICPN agreed that stability would be promoted by conserving Sarcopterygii = clade (coelacanth + frog) over Gnathostomata = clade (coelacanth + frog), it would formally suppress the latter name-definition combination, and, as Forey stated, 'Gnathostomata' could then be redefined (e.g. as clade (shark + frog)). In Forey's view, 'this is hardly stability' (p. 91). On the contrary, permitting redefinition of taxon names following suppression enhances stability in that it permits their continued use in a manner consistent with prevailing use. Otherwise, a well known name such as 'Gnathostomata' might have to be abandoned simply because the first definition published for it was inappropriate.

Supposed problems with apomorphy-based definitions

Forey suggested that linking a name with a statement about phylogeny causes difficulties for phylogenetic nomenclature – in particular, with apomorphy-based definitions – because it 'leads into theories of homology' (p. 91), or more specifically, because 'characters [apomorphies] are homologies and homologies are theories' (p. 92). To illustrate the supposed problem, he used as an example the name 'Tetrapoda' defined as 'the clade consisting of all those animals with fingers and toes homologous with those in *Rana esculenta*'. He noted that under certain phylogenetic hypotheses the evolution of this character (fingers and toes) is ambiguous (see Fig. 1, which corresponds to Forey's Fig. 4). It might have originated in the common ancestor of amniotes (represented by lacertilians) and amphibians (represented by caecilians, urodeles, and anurans), with subsequent loss in the caecilians; this result is obtained under accelerated transformation optimisation (Fig. 1a, or Forey's

Fig. 4a). Alternatively, fingers and toes might have originated separately in amniotes (lacertilians) and in the common ancestor or urodeles and anurans, so that the absence of fingers and toes in caecilians is primary; this result is obtained under delayed transformation optimization (Fig. 1b, or Forey's Fig. 4b). Forey concluded that under the second scenario (delayed transformation), the character fingers and toes is not regarded as a synapomorphy (i.e. of lacertilians and urodeles plus anurans) and therefore presumably would not be used as a specifier. On the contrary, Forey included the stipulation that the fingers and toes that specify the reference of the name 'Tetrapoda' must be homologous with those of *Rana esculenta*. Clauses of this sort are included specifically to deal with the possibility of convergent and parallel evolution (Gauthier & de Queiroz, 2001). Under this stipulation, if the fingers and toes of lacertilians are not homologous with those of urodeles and anurans (including *Rana esculenta*), then lacertilians are not part of Tetrapoda. Thus, homoplasy is not a reason to avoid the use of a character as a specifier.

On the other hand, Forey pointed out that in this example the two scenarios (i.e. those based on accelerated vs. delayed transformation procedures) are equally parsimonious. From this observation, he concluded (p. 93) that '*in order for there to be no ambiguity we need [to add] a qualifying phrase*' stipulating further that the fingers and toes are homologous with those of *Rana esculenta* '*under the optimising procedure of accelerated transformation*'. Forey's conclusion is incorrect and results from an unrealistic requirement that there be no ambiguity regarding the composition of a taxon. In this case, ambiguity results from the equally parsimonious alternative scenarios for the evolution of the character, which result in different conclusions about the composition of Tetrapoda (i.e. whether lacertilians and caecilians are part of that taxon). But contrary to Forey's view, ambiguity does not cause a problem for apomorphy-based definitions, let alone for phylogenetic nomenclature in general; instead, it only causes a problem concerning inferences about the composition of a taxon – a taxonomic problem that can exist regardless of one's preference for traditional versus phylogenetic nomenclature. In the example under consideration, there is no need to add Forey's further stipulation to the definition; all that is necessary is to accept some uncertainty about the composition of Tetrapoda (i.e. about whether lacertilians and caecilians are part of that taxon). Forey himself seems to acknowledge such uncertainty when he suggests (p. 93) the alternative qualifying clause '*under any optimising procedure*'. If 'any' here means 'any one of several', then this stipulation is undesirable in that it would lead to the conclusion that lacertilians and caecilians are part of Tetrapoda—that is, in spite of the uncertainty about the homology of lacertilian digits and whether caecilians are primarily or secondarily digitless. Alternatively, if 'any' means 'no matter which', then this statement goes without saying and leads to the same conclusion described above – namely, that it is uncertain whether lacertilians and caecilians are part of Tetrapoda. Thus, although Forey's example does illustrate a problem, that problem is a shortcoming neither of apomorphy-based definitions nor of phylogenetic nomenclature in general. Instead, it is merely the problem of inferential uncertainty – a general problem that applies to all scientific hypotheses.

Finally, as Forey pointed out, his example is highly contrived. There are, in fact, additional taxa possessing fingers and toes positioned at various points on Forey's tree (e.g. Laurin & Reisz, 1997). When these taxa are considered, there is only one

most parsimonious optimization of the character, namely, gain in a common ancestor of amphibians and amniotes with subsequent loss in caecilians (Fig. 1c). This optimisation leads to the unambiguous inference that the fingers and toes of lacertilians are homologous with those of *Rana esculenta*, that caecilians are secondarily digitless, and thus that both lacertilians and caecilians are part of Tetrapoda.

Phylogenetic nomenclature: what is to be lost and gained?

In the first two paragraphs of his section entitled '*Pain – no gain*', Forey argued (p. 93) that '*with respect to clarity and stability there may be no difference between Phylogenetic Nomenclature and Linnaean taxonomy*', and he concluded (p. 94) that the claim that the PhyloCode will improve nomenclatural clarity and stability '*is at best illusionary and at worse misleading. There is nothing to be gained*'. In support of this view, he discussed changes in the membership of Crossopterygii as hypothesized phylogenies changed through the years and concluded (p. 94) that, under either phylogenetic or traditional nomenclature, '*if we want to understand the systematic history of a particular taxon we still have to examine all of the phylogenies under which that name has been used because the name itself may be compatible with more than one phylogenetic hypothesis*'. This is certainly true, but it has nothing to do with the manner in which phylogenetic nomenclature improves clarity and stability of names – that is, by eliminating changes in the names and/or membership of clades caused solely by changes in rank. This problem and others that result from tying names to taxonomic ranks under the Zoological Code and its botanical and bacteriological counterparts are summarized briefly above and elaborated upon in the cited literature. Forey largely ignored these problems in his commentary, and he further avoided the issue by choosing examples above the rank of family group (e.g. Aves, Crossopterygii, Tetrapoda), where names are not defined under the Zoological Code (see *Compositional changes and nomenclatural stability*).

After presenting this irrelevant discussion purporting to show that nothing is to be gained from phylogenetic nomenclature, Forey asserted (p. 94) that this system will administer '*pain*' in five ways. In each case, the supposed pain is either questionable, false, exaggerated, or irrelevant. First, Forey asserted that '*new names may have to be coined for very familiar groups*'. He did not present any evidence to support this statement but instead went on to discuss a different issue – the implications of a single name being defined differently in phylogenetic versus traditional nomenclature. Contrary to Forey's assertion, adoption of phylogenetic nomenclature should rarely result in the coining of new names for very familiar taxa. Names that currently refer to clades will continue to refer to the same clades; the difference will be that the names will be defined so that their references to those clades will be direct and explicit. The primary exceptions will be names (mostly those of genera) that are used under more than one traditional code. Because the PhyloCode will apply to all organisms, it will require replacement of one member of each pair of such cross-code homonyms. For example, if the existing plant genus name *Prunella* were to be defined phylogenetically as referring to a clade of plants, then the identical existing bird genus name could not subsequently be used for a clade of birds, and the bird clade that currently bears this genus name would have to be given a different name under the PhyloCode. If this situation jeopardized a widely used genus name, its replacement could be prevented

through conservation (for further discussion see Cantino, 2000). On the other hand, names that did not previously refer to clades either would not be used or would be redefined as referring to clades. For example, the name 'Osteichthyes' – originally the name of a paraphyletic taxon – either would be avoided or it would be defined to include the subgroup (i.e. Tetrapoda) that had formerly been removed to render it paraphyletic.

Later in the same paragraph (p. 94), Forey presented an example of how phylogenetic redefinition of a name could cause confusion. However, the example he cited – Laurin's (1998) phylogenetic redefinition of the name 'Anthracosauria' so that (in the context of Laurin's proposed phylogeny) the taxon no longer included *Anthracosaurus* – would not be permitted under the PhyloCode. According to PhyloCode Article 11.8, when a clade name is a converted name derived from the stem of a genus name, the definition of the clade name must use the type species of the genus name as an internal specifier. The name 'Anthracosauria' is derived from the stem of the genus name *Anthracosaurus*; therefore, if 'Anthracosauria' is to be converted under the PhyloCode by defining it phylogenetically, Article 11.8 requires that *Anthracosaurus russelli* (the type species of *Anthracosaurus*) be used as an internal specifier. Consequently, the clade Anthracosauria would have to include *Anthracosaurus* regardless of the hypothesized phylogeny, since internal specifiers are, by definition, members of the clades whose names they are used to define. In fact, Forey cited Article 11.8 in his discussion, but he apparently misunderstood it to cover only clade names converted from preexisting genus names and not those converted from preexisting suprageneric names derived from the stems of genus names.

Second, Forey asserted (p. 94) that the PhyloCode is agnostic about characters, relationships, and membership – that is, '*precisely the . . . information which may be of importance to comparative biologists*'. He thus overlooked the fact that the Zoological Code is also agnostic about characters, relationships, and membership, which are taxonomic rather than nomenclatural concerns. In addition, contrary to Forey's assertion, the PhyloCode (like the Zoological Code) does not suggest that the retrieval of information about these properties will be either easy or difficult.

Third, Forey complained (p. 94) that under phylogenetic nomenclature, '*changing hypotheses of relationship will mean that names are used and disused according to the phylogeny in fashion at that time (in Linnaean taxonomy the name will remain the same but the membership may change)*'. Although Forey is correct in saying that some names would not be used in certain phylogenetic contexts, this situation is appropriate. If a name does not apply to any clade in the accepted phylogeny, or if it is synonymous with an earlier-published name for the same clade, then not using that name makes perfect sense. Furthermore, the accepted phylogeny, which Forey seemed to denigrate as a 'fashion', is determined by the judgement of taxonomists based on their assessments of the available evidence, just as in traditional taxonomy. Finally, Forey is incorrect in believing that in traditional taxonomy names remain the same and only membership changes. Taxon names in traditional nomenclature, just like those in phylogenetic nomenclature, are used and disused according to the taxonomic hypothesis accepted at the time. Thus, under the Zoological Code, if a name is judged to be synonymous with an earlier-published name for the same ranked taxon in the accepted taxonomy, then that name is not used as the valid name of the taxon. It should also be noted that in traditional nomenclature, the use and

disuse of names depending on precedence among competing synonyms results from changes in rank and the associated phenomena of splitting and lumping. What Forey failed to mention is that in traditional nomenclature such changes in rank can result not only from the acceptance of an alternative phylogenetic hypothesis (as in phylogenetic nomenclature) but also from phenetic considerations or even arbitrary decisions – sources of instability that do not occur in phylogenetic nomenclature.

Fourth, as Forey correctly pointed out (p. 94), the PhyloCode deals with the names of clades – that is, monophyletic groups of species. Although Forey stated that he considers the naming of clades '*a desirable endpoint*', that he '*agrees strongly that monophyletic groups are the only real biological entities worth consideration*', and that he '*would never argue for the retention of paraphyletic taxa*', he noted that '*there are vast branches of the tree of life where monophyly has yet to be demonstrated*', and that he is '*mindful of the fact that for many biologists potentially non-monophyletic groups (e.g. Bryophyta) still serve a useful purpose for their own reasons of communication*'. From these observations, he concluded that phylogenetic nomenclature will leave certain assemblages of taxa un-named and that '*we will still have to live with Linnaean names alongside PhyloCode names*'. Although these conclusions are not incorrect, they are not particularly damaging to the PhyloCode. For one thing, it is not expected that all existing names will immediately be redefined phylogenetically; instead, this process will occur piecemeal as individual systematists work on the phylogenies of particular groups and apply phylogenetic nomenclature in the context of their results. For this reason, the PhyloCode suggests conventions (Recommendation 6.1B) for distinguishing PhyloCode names from names that are not defined phylogenetically. Moreover, it is not clear that these other names must be 'Linnaean', if by that term Forey means that the names will have to be governed by one of the codes of traditional nomenclature. Instead, taxa of uncertain monophyly could be referred to using informal names or formal names that are not governed by any code (much like those of zoological taxa above the rank of superfamily). Finally, as noted above (see *Annotated Linnaean Systems*), the PhyloCode is entirely compatible with the use of taxonomic conventions (e.g. quotation marks) indicating that certain names refer to non-monophyletic taxa.

Fifth, Forey predicted (p. 95) that '*adoption of the PhyloCode can and probably would lead to a rapid inflation of names*'; he then argued that systematists would not be '*servicing the wider biological community by introducing a plethora of names, each with their own definitions which need to be understood before they can be used by others*'. The idea that explicitly phylogenetic approaches will lead to a proliferation of names is an old fear (e.g. Bock, 1977; Colless, 1977). That Forey voices this fear is ironic given his own advocacy of monophyletic taxonomies, which aligns him with a movement against which the same criticism was raised. In any case, the proliferation of taxon names is a phenomenon that has continued unabated throughout the long history of taxonomy, and it is not at all clear that this trend is caused by changing taxonomic or nomenclatural philosophies rather than simply by the inexorable accumulation of knowledge about biological diversity. Moreover, the trend itself suggests that the resulting names have been useful, which calls the premise of Forey's argument into question. That is to say, it is not at all clear that the biological community is better served by limiting the introduction of new taxon names than by allowing names to be introduced freely. Consequently, we consider it

preferable not to limit the introduction of new names from the outset, but to have a nomenclatural system that allows taxonomists to name the taxa that they want to name. Those names will then persist or not depending on whether they are actually used by biologists.

As for the need to understand the definitions of taxon names, this is hardly a disadvantage of phylogenetic nomenclature. Regardless of whether one adopts traditional or phylogenetic nomenclature, the user of a taxon name must understand what taxon it refers to in order to use the name properly. And under both systems, the application of a taxon name is something that needs to be looked up – it cannot be determined from the name itself. To look up the application of a name, most users would simply consult a comprehensive taxonomic database such as a global checklist or a regional flora or fauna. Under phylogenetic nomenclature, the authors of these authoritative works will have to delve into the systematic literature to decide which phylogenies to accept, which clades to include in their works, and which names have precedence for those clades, just as they currently (i.e. under traditional nomenclature) have to delve into the original taxonomic literature to decide which circumscriptions of families and genera to use, whether to accept lumping or splitting of particular groups by previous authors, and which names have precedence.

In summary, Forey's assertion that nothing is to be gained by adopting the PhyloCode depends on his ignoring the main advantage of phylogenetic nomenclature (i.e. the stability of its names in the face of changes in taxonomic ranks) and focusing instead on irrelevant issues (e.g. the fact that understanding the systematic history of a taxon requires examining the various phylogenies under which its name has been used). In addition, the "pain" that Forey believes will result from adoption of the PhyloCode does not exist. The specific concerns that he raised are based on (1) his incorrectly interpreting the PhyloCode (e.g. his belief that the name 'Anthracosauria' could be phylogenetically defined to exclude *Anthracosaurus*), (2) his imagining problems where none exists (e.g. his conclusion that some groups will have to remain un-named because their phylogenetic relationships are poorly understood), (3) his criticizing the PhyloCode for properties that are also shared by the Zoological Code (e.g. the facts that names are used and disused depending on the accepted taxonomic hypothesis and that the application of names must be understood before the names can be properly used), (4) his accepting questionable premises (e.g. the idea that biology is best served by limiting the introduction of new taxon names), and (5) his failing to distinguish consistently between taxonomy and nomenclature (e.g. the assertion that the PhyloCode is agnostic about characters, relationships, and membership).

Conclusion

In the conclusion of his critique, Forey asked what is to be gained by adopting the PhyloCode. The answer is a system of nomenclature that regulates the naming of taxa and the subsequent application of taxon names in a manner that is more concordant with evolutionary concepts of taxa than under the traditional rank-based codes. Such a system facilitates the naming of clades and promotes the subsequent application of their names in ways that more closely conform to the manner in which they are conceptualized. As for the alleged pains, all of those proposed by Forey are either imagined or exaggerated.

Forey ended his critique of phylogenetic nomenclature and the PhyloCode with the statement (p. 95) that '*the biological community will have to judge whether the alleged gains are worth the undoubted pain*'. The developers of the PhyloCode agree that systematists should explore the ramifications of phylogenetic nomenclature in their study groups and decide for themselves which system is preferable. Although Forey's own conclusion is that the disadvantages of the PhyloCode outweigh its advantages, examination of his specific criticisms reveals that he did not identify a single significant shortcoming of phylogenetic nomenclature relative to its traditional counterpart. Moreover, although Forey believes that nothing is to be gained by adopting the PhyloCode, he reached that conclusion by ignoring the advantages that have been proposed and discussed by previous authors. When these advantages are taken into consideration along with Forey's failure to identify any disadvantages, it seems that the balance is tilted decidedly in favor of the PhyloCode. Indeed, the greatest obstacle to the adoption of the PhyloCode is probably not any disadvantage of phylogenetic nomenclature itself but the simple inertia of tradition.

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References

- Bock, W.J. 1977. Foundations and methods of evolutionary classification. Pp. 851–895 in Hecht, M.K., Goody, P.C. & Hecht, B.M. (Eds.), *Major patterns in vertebrate evolution*. Plenum, New York.
- Bryant, H.N. & Cantino, P.D. (In Press). A review of criticisms of phylogenetic nomenclature: is taxonomic freedom the fundamental issue? *Biological Reviews*.
- Cantino, P.D. 2000. Phylogenetic nomenclature: addressing some concerns. *Taxon*, **49**: 85–93.
- Cantino, P.D., Wagstaff, S.J. & Olmstead, R.G. 1999. *Caryopteris* (Lamiaceae) and the conflict between phylogenetic and pragmatic considerations in botanical nomenclature. *Systematic Botany*, **23**: 369–386.
- Colless, D.H. 1977. A cornucopia of categories. *Systematic Zoology*, **26**: 349–352.
- de Queiroz, K. 1996. A phylogenetic approach to biological nomenclature as an alternative to the Linnaean systems in current use. In Reveal, J.L. (Ed.), *Proceedings of a mini-symposium on biological nomenclature in the 21st century*. University of Maryland: www.life.umd.edu/bees/96sym.html, College Park, Maryland.
- de Queiroz, K. 1997. The Linnaean hierarchy and the evolutionization of taxonomy, with emphasis on the problem of nomenclature. *Aliso*, **15**: 125–144.
- de Queiroz, K. & Gauthier, J. 1994. Toward a phylogenetic system of biological nomenclature. *Trends in Ecology and Evolution*, **9**: 27–31.
- Estes, R. 1983. Sauria terrestria, Amphisbaenia. *Handbuch der Paläoherpetologie*, **10A**: 1–249.
- Foote, M. 1995. Morphological diversification in Paleozoic crinoids. *Paleobiology*, **21**: 273–299.
- Forey, P.L. 2001. The PhyloCode: description and commentary. *Bulletin of Zoological Nomenclature*, **58**: 81–96.
- Gauthier, J. & de Queiroz, K. 2001. Feathered dinosaurs, flying dinosaurs, crown dinosaurs, and the name 'Aves'. Pp. 7–41 in Gauthier, J. (Ed.), *New perspectives on the origin and*

- early evolution of birds: Proceedings of the International Symposium in Honor of John H. Ostrom*. Yale University Press, New Haven, Connecticut.
- Hennig, W.** 1966. *Phylogenetic systematics*. University of Illinois Press, Urbana.
- Hibbett, D.S. & Donoghue, M.J.** 1998. Integrating phylogenetic analysis and classification in fungi. *Mycologia*, **90**: 347–356.
- Kron, K.A.** 1997. Exploring alternative systems of classification. *Aliso*, **15**: 105–112.
- Laurin, M. & Reisz, R.R.** 1997. A new perspective on tetrapod phylogeny. Pp. 9–59 in Sumida, S.S. & Martin, K.L.M. (Eds.), *Amniote origins: completing the transition to land*. Academic Press, San Diego and New York.
- Lee, M.S.Y.** 2001. On recent arguments for phylogenetic nomenclature. *Taxon*, **50**: 175–180.
- Mayr, E.** 1969. *Principles of systematic zoology*. McGraw–Hill, New York.
- Mayr, E. & Ashlock, P.D.** 1991. *Principles of systematic zoology*. 2nd Ed. McGraw–Hill, New York.
- Nelson, G.** 1973. Classification as an expression of phylogenetic relationships. *Systematic Zoology*, **22**: 344–359.
- Patterson, C. & Rosen, D.E.** 1977. Review of ichthyodectiform and other Mesozoic teleost fishes and the theory and practice of classifying fossils. *Bulletin of the American Museum of Natural History*, **158**: 81–172.
- Pleijel, F.** 1999. Phylogenetic taxonomy, a farewell to species, and a revision of *Heteropodarke* (Hesionidae, Polychaeta, Annelida). *Systematic Biology*, **48**: 755–789.
- Simpson, G.G.** 1961. *Principles of animal taxonomy*. Columbia University Press, New York.
- Smith, A.B.** 1994. *Systematics and the fossil record. Documenting evolutionary patterns*. Blackwell Scientific Publications, Oxford.
- Smith, A.B. & Patterson, C.** 1988. The influence of taxonomy on the perception of patterns of evolution. *Evolutionary Biology*, **23**: 127–216.
- Wiley, E.O.** 1979. An annotated Linnaean hierarchy, with comments on natural taxa and competing systems. *Systematic Zoology*, **28**: 308–337.
- Wiley, E.O.** 1981. *Phylogenetics: the theory and practice of phylogenetic systematics*. John Wiley and Sons, New York.

Case 3187

***Isoospora* Schneider, 1881 (Protista, Apicomplexa): proposed designation of *I. suis* Biester, 1934 as the type species**

David Modrý

Department of Parasitology, University of Veterinary and Pharmaceutical Sciences, Palackého 1–3, 612 42 Brno, Czech Republic
(e-mail: modryd@vfu.cz)

Abstract. The purpose of this application is to designate *Isoospora suis* Biester, 1934 (family SARCOCYSTIDAE) as the type species of *Isoospora* Schneider, 1881. At present the nominal species *I. rara* Schneider, 1881 is the type species by monotypy, but the original material (cysts recovered from a slug, and probably of avian origin) does not exist and the species is unrecognisable from its description; it probably belonged to the EIMERIIDAE. The name *Isoospora* is in wide use for parasitic coccidia which are of medical and veterinary importance because they cause the disease isosporosis in mammals, including man. To stabilise this usage it is proposed that *I. suis* Biester, 1934, which causes isosporosis in pigs, should be designated as the type species.

Keywords. Nomenclature; taxonomy; Protista; Apicomplexa; Coccidia; SARCOCYSTIDAE; EIMERIIDAE; *Isoospora*; *Isoospora rara*; *Isoospora suis*; coccidiosis; isosporosis; isosporiasis.

1. The genus *Isoospora* Schneider, 1881 (Protista, Apicomplexa) is at present used to include several hundred species of coccidia infecting vertebrates, including man; several species are of economic and medical importance since they cause diseases known as isosporosis (or isosporiasis).

2. Schneider (1881, p. 401) established the generic name *Isoospora* for the nominal species *I. rara*, described from cysts recovered from a slug (“une petite Limace noire”, later suggested to be *Limax cinereoniger*). *I. rara* is thus the type species of *Isoospora* by monotypy. The deposition of type material was not mentioned and none is known to exist, and nor has the species been recognised since its original inadequate description.

3. It has recently been shown from molecular data, as well as morphology, that *Isoospora* (as at present used) is polyphyletic and that parasites previously included in this genus actually belong to two different apicomplexan families: the EIMERIIDAE and the SARCOCYSTIDAE (see Carreno & Barta, 1999). The only reason for the traditional congenericity of these two groups is the superficially similar organisation of exogenous stages. Morphological features corresponding with molecular data typical for each lineage have been repeatedly demonstrated (for example, see Box, Marchiondo, Duszynski & Davis, 1980). Species included in the nominal genus *Isoospora* which infect mammals represent a morphologically uniform group of coccidia closely related to the medically important genera *Toxoplasma*, *Neospora*, *Hammondia* and *Besnoitia* of the SARCOCYSTIDAE. In contrast, a second group of ‘isoporans’ evidently belongs to the EIMERIIDAE (Carreno & Barta, 1999).

4. In an attempt to resolve the problem of the identity of the type species *I. rara*, numerous slugs belonging to the families LIMACIDAE and ARIONIDAE have been examined. Isolates of the various coccidia that were found are apparently of pseudoparasitic origin. The ability of slugs to ingest stages of coccidia by coprophagy and their ability to carry and expel unchanged cysts have been proven experimentally (D. Modrý and others, unpublished). Therefore, a pseudoparasitic origin of *Isoospora rara* is suggested.

5. The species *Isoospora suis* Biester, 1934 (p. 106) is the most important member of the genus, having a significant economic impact on pig farming. *I. suis* is evidently congeneric with other monoxenous isosporan coccidia of medical importance, as documented by morphological and molecular biological studies, including rDNA sequences available in GenBank (Biester, 1934; Biester & Murray, 1934a, b; Carreno et al., 1998).

6. I propose that *Isoospora suis* Biester, 1934 should be designated as the type species of *Isoospora* Schneider, 1881 in order to stabilise the use of the name *Isoospora* for the important lineage of parasites in the family SARCOCYSTIDAE which cause mammalian isosporosis. A simple check on the Internet for the name *Isoospora* will show that at least 90% of current papers using the name deal with species belonging to this mammalian/human group of isosporans. The typification of *Isoospora* by *I. suis* will allow the usage of *Diploospora* Labbé, 1893 (p. 407; type species *Isoospora lacazei* Labbé, 1893, from the goldfinch *Carduelis carduelis*) for members of a quite distinct group of coccidia (family EIMERIIDAE) parasitic in birds and reptiles, to which the unrecognisable *Isoospora rara* probably belonged.

7. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to set aside all previous fixations of type species for the nominal genus *Isoospora* Schneider, 1881 and to designate *Isoospora suis* Biester, 1934 as the type species;
- (2) to place on the Official List of Generic Names in Zoology the name *Isoospora* Schneider, 1881 (gender: feminine), type species by designation in (1) above *Isoospora suis* Biester, 1934;
- (3) to place on the Official List of Specific Names in Zoology the name *suis* Biester, 1934, as published in the binomen *Isoospora suis* (specific name of the type species of *Isoospora* Schneider, 1881).

References

- Biester, H.E.** 1934. *Isoospora suis*, n. sp. from the pig. Pp. 106–107 in Becker, E.R., (Ed.), *Coccidia and coccidiosis of domesticated, game, and laboratory animals and of man*. Collegiate Press, Ames, Iowa.
- Biester, H.E. & Murray, C.** 1934a. The occurrence of *Isoospora suis* n. sp. in swine. *Journal of the American Veterinary Medical Association*, **84**: 294.
- Biester, H.E. & Murray, C.** 1934b. Studies in infectious enteritis of swine. VIII. *Isoospora suis* n. sp. in swine. *Journal of the American Veterinary Medical Association*, **85**: 207–219.
- Box, E.D., Marchiondo, A.A., Duszynski, D.W. & Davis, C.P.** 1980. Ultrastructure of *Sarcocystis* sporocysts from passerine birds and opossums: comments on classification of the genus *Isoospora*. *Journal of Parasitology*, **66**: 68–74.
- Carreno, R.A. & Barta, J.R.** 1999. An eimeriid origin of isosporoid coccidia with Stieda bodies as shown by phylogenetic analysis of small subunit ribosomal RNA gene sequences. *Journal of Parasitology*, **85**: 77–83.

- Carreno, R.A., Schnitzler, B.E., Jeffries, A.C., Tenter, A.M., Johnson, A.M. & Barta, J.R.** 1998. Phylogenetic analysis of coccidia based on 18S rDNA sequence comparison indicates that *Isospora* is most closely related to *Toxoplasma* and *Neospora*. *Journal of Eukaryotic Microbiology*, **45**: 184–188.
- Labbé, A.** 1893. Sur les coccidies des oiseaux. *Comptes Rendus de l'Académie des Sciences*, (3)**117**: 407–409.
- Schneider, A.** 1881. Sur les psorospermies oviformes ou coccidies. Espèces nouvelles ou peu connues. *Archives de Zoologie Experimentale et Générale*, **9**: 387–404.
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Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).

Case 3148**CLARIIDAE Kutikova, Markevich & Spiridonov, 1990 (Rotifera):
proposed emendment of spelling to CLARIAIDAE to remove homonymy
with CLARIIDAE Bonaparte, 1846 (Osteichthyes, Siluriformes)**

L.A. Kutikova

*Zoological Institute, Russian Academy of Sciences, St Petersburg 199034,
Russia (e-mail: ecology@zin.ru)*

Abstract. The purpose of this application is to remove the homonymy between the family-group names CLARIIDAE Kutikova, Markevich & Spiridonov, 1990 (Rotifera) and CLARIIDAE Bonaparte, 1846 (Osteichthyes). Both names are currently in use and refer respectively to a single rotifer genus and a large group of air breathing catfishes. It is proposed that the homonymy be removed by changing the spelling of the rotifer family-group name by adopting the full genus name as the stem, giving the corresponding family-group name CLARIAIDAE Kutikova, Markevich & Spiridonov, 1990. The fish name CLARIIDAE Bonaparte, 1846 would remain unchanged.

Keywords. Nomenclature; taxonomy; Rotifera; Osteichthyes; CLARIIDAE; CLARIAIDAE; *Clarias*; *Claria*; air breathing (labyrinth) catfishes; rotifers.

1. The family name CLARIIDAE was first established by Bonaparte (1846, p. 5) for a group of air breathing freshwater catfishes from tropical Africa and Asia. It is based on the genus *Clarias* Scopoli, 1777 (p. 455) (ex Gronovius, 1763, p. 100; the work of Gronovius was rejected by the Commission in Opinion 261, 1954). Scopoli spelled the name as *Chlarias*, but the spelling *Clarias* has been universally used (Eschmeyer, 1998, p. 1895) and is deemed correct under Article 33.3.1 of the Code. The type species is *Silurus anguillaris* Linnaeus, 1758 (p. 305) by subsequent designation of Teugels & Roberts (1987, p. 96). The stem CLARI- has been used to form the family name CLARIIDAE; the family contains about 15 genera and numerous species.

2. Kutikova, Markevich & Spiridonov (1990, p. 118) established the family CLARIIDAE for their genus *Claria* (Rotifera), based on the single species *C. segmentata* (p. 120). *C. segmentata* was discovered in the intestine of *Pheretima modiglianii* (Rosa, 1899) (Oligochaeta) from Vietnam.

3. The family-group names established by Bonaparte, 1846 (Osteichthyes) and Kutikova, Markevich & Spiridonov, 1990 (Rotifera) are homonyms under Article 53.1 of the Code. Both family-group names are currently in use. In accordance with Article 55.3.1 of the Code I propose that the homonymy be removed by emending the stem of the junior name from CLARI- to CLARIA-, thereby changing the rotifer family-group name to CLARIAIDAE; the fish name CLARIIDAE Bonaparte, 1846 would remain unchanged.

4. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to rule that for the purposes of Article 29 of the Code the stem of the generic name *Claria* Kutikova, Markevich & Spiridonov, 1990 is CLARIA-;
- (2) to place on the Official List of Generic Names in Zoology the name *Claria* Kutikova, Markevich & Spiridonov, 1990 (gender: feminine), type species by monotypy *Claria segmentata* Kutikova, Markevich & Spiridonov, 1990 (Rotifera);
- (3) to place on the Official List of Specific Names in Zoology the name *segmentata* Kutikova, Markevich & Spiridonov, 1990 as published in the binomen *Claria segmentata* (specific name of the type species of *Claria* Kutikova, Markevich & Spiridonov, 1990) (Rotifera);
- (4) to place on the Official List of Family-Group Names in Zoology the name CLARIAIDAE Kutikova, Markevich & Spiridonov, 1990, type genus *Claria* Kutikova, Markevich & Spiridonov, 1990 (spelling emended by the ruling in (1) above) (Rotifera);
- (5) to place on the Official Index of Rejected and Invalid Family-Group Names in Zoology the name CLARIIDAE Kutikova, Markevich & Spiridonov, 1990 (spelling emended to CLARIAIDAE by the ruling in (1) above).

Acknowledgements

I would like to thank Dr. H. Segers of Gent, who kindly informed me about the homonymy discussed above and Dr. I.M. Kerzhner for his help with preparing the manuscript.

References

- Bonaparte, C.L.** 1846. *Catalogo metodico dei pesci Europei*. 99 pp. Napoli.
- Eschmeyer, W.N.** 1998. Genera of fishes. Pp. 1821–2905 in Eschmeyer, W.N. (Ed.), *Catalog of fishes*, vol. 3, part 2. California Academy of Sciences, San Francisco.
- Gronovius, L.T.** 1763. *Zoophylacium Gronovianum* . . . 136 pp. Lugduni Batavorum.
- Kutikova, L.A., Markevich, G.I. & Spiridonov, S.E.** 1990. A new rotifer *Claria segmentata*, sp. nov. from the intestine of the earthworm. Pp. 117–122 in: *Rotifera. Proceedings of the third All-Union Rotifer symposium*. Leningrad. [In Russian].
- Linnæus, C.** 1758. *Systema Naturae*, Ed. 10, vol. 1. 824 pp. Salvii, Holmiae.
- Scopoli, J.A.** 1777. *Introductio ad historiam naturalem* . . . x, 506 pp. Prague.
- Teugels, G.G. & Roberts, T.R.** 1987. *Silurus anguillar* Linnaeus, 1758: designation as type species of *Clarias* Scopoli, 1777 and rediscovery of holotype (Pisces: CLARIIDAE). *Zoological Journal of the Linnean Society*, **90**: 95–98.

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).

Case 3212***Thalassema taenioides* Ikeda, 1904 (currently *Ikeda taenioides*; Echiura): proposed conservation of the specific name**

Teruaki Nishikawa

The Nagoya University Museum, Chikusa-ku, Nagoya 464-8601, Japan
(e-mail: nishikawa@num.nagoya-u.ac.jp)

Abstract. The purpose of this application is to conserve the name of *Ikeda taenioides* (Ikeda, 1904) for a species of echiuran from the coasts of Japan. *Thalassema halotaeniai* Ikeda, 1901 and *T. taeniaides* Ikeda, 1902 are earlier names which have remained unused since publication and it is proposed that they be suppressed. The genus *Ikeda* Wharton, 1913, the subfamily IKEDINAE Bock, 1942 and the order Heteromyota Fisher, 1946 were established in the phylum Echiura based on the single species.

Keywords. Nomenclature, taxonomy; Echiura; Heteromyota; IKEDIDAE; *Ikeda*; *Ikeda taenioides*; Japan.

1. Ikeda (1901, p. 392) established the new species *Thalassema halotaeniai* with the Japanese name of ‘Sanada-yumushi’ for two echiuran specimens with an extremely elongated proboscis from an exposed sandy flat in Sagami Bay. A description in Japanese and illustrations were published in the last issue (December 1901) of vol. 13 of *Dobutsugaku Zasshi* [*The Zoological Magazine, Japan*].

2. Very soon after Ikeda’s (1901) publication, the illustration (p. 387) of a complete echiurid specimen was repeated (now in colour) in the first issue (January 1902) of vol. 14 of the same journal. The plate carried the name ‘*Thalassema taeniaides* Ikeda’, which is available under Article 12.2.7 of the Code. In the second issue (February 1902) of vol. 14 of the journal, Yasuda (p. 75) published an editorial note recording, without giving a reason, that the name *Thalassema halotaeniai* published in the preceding volume was an error and should be corrected to *Thalassema taeniaides*. *Thalassema halotaeniai* and *T. taeniaides* have both remained unused.

3. In 1904 Ikeda (p. 63) gave a description in English of the species under the name *Thalassema taenioides* [sic]. He cited this as ‘n. sp.’ [new species]. More details and several illustrations were added by Ikeda (1907), including (pl. 1, fig. 3) a further repeat of the 1901 and 1902 illustration. The 1904 paper referred to the forthcoming detailed study of 1907, and the 1907 publication recorded the 1904 paper. However, Ikeda’s two descriptions (1904 and 1907) omitted any reference to his own (1901, 1902) and Yasuda’s (1902) earlier publications, possibly because Ikeda regarded these as preliminary reports only for local (Japanese) interest.

4. In 1913 Wharton (p. 266) established the genus *Ikeda* with *Thalassema taenioides* Ikeda, 1904 as the type species by monotypy. Subsequently, Bock (1942, p. 16)

established the subfamily IKEDINAE (for spelling see Nishikawa, 1998) in the family THALASSEMATIDAE Bock, 1942, and Fisher (1946) established the order Heteromyota, based on the single species. The family–group name has been used at family level since Dawydoff (1959).

5. The illustration of a complete specimen of *Thalassema taenioides* was repeated in Ikeda's 1901, 1904 and 1907 publications, and it is clear that his 1901, 1904 and 1907 descriptions were based on specimens of the same species collected 'during October and November 1901' (see Ikeda, 1907, p. 18). In 1901 there were two specimens, in 1904 there were at least six. I have tried to find the specimens in some likely universities and museums, but so far have been unsuccessful. However, among some echinuran material housed at the University Museum, University of Tokyo (UMUT), I found some fragments labelled '*Thalassema halotan*. [sic], Dec. 24, 1901, Moroiso'. As far as I am aware, these are the only existing specimens of *T. taenioides* which were seen and identified by Ikeda.

6. Neither of the names *Thalassema halotaeniai* Ikeda, 1901 and *T. taeniaides* Ikeda, 1902 has been used since publication. The name *T. taenioides* has been in universal usage for the species, attributed to Ikeda (1904) and accompanied in Japan usually with the name 'Sanada–yumushi'. Publications in which the name *T. taenioides* has been adopted include Balzer (1931), Satô (1931, 1935, 1939), Bock (1942), Dawydoff (1959), Ito (1965), Stephen & Edmonds (1972), Edmonds (1987, 2000), Nishikawa (1992), McKenzie & Hughes (1999). I propose that the usage of *taenioides* be maintained and that the name be conserved by the suppression of the earlier unused names *T. halotaeniai* and *T. taeniaides*. For the sake of stability and simplicity the name *taenioides* is taken as available from Ikeda's (1904) detailed study of the species (rather than under Article 33.2.2 from the 1902 plate of *T. 'taeniaides'*), in accord with Ikeda himself (1904 and 1907) and subsequent authors.

7. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to suppress the following names for the purposes of the Principle of Priority but not for those of the Principle of Homonymy:
 - (a) *halotaeniai* Ikeda, 1901, as published in the binomen *Thalassema halotaeniai*;
 - (b) *taeniaides* Ikeda, 1902, as published in the binomen *Thalassema taeniaides*;
- (2) to place on the Official List of Generic Names in Zoology the name *Ikeda* Wharton, 1913 (gender: feminine), type species by monotypy *Thalassema taenioides* Ikeda, 1904;
- (3) to place on the Official List of Specific Names in Zoology the name *taenioides* Ikeda, 1904, as published in the binomen *Thalassema taenioides* (specific name of the type species of *Ikeda* Wharton, 1913);
- (4) to place on the Official Index of Rejected and Invalid Specific Names in Zoology the following names:
 - (a) *halotaeniai* Ikeda, 1901, as published in the binomen *Thalassema halotaeniai* and as suppressed in (1)(a) above;
 - (b) *taeniaides* Ikeda, 1902, as published in the binomen *Thalassema taeniaides* and suppressed in (1)(b) above.

References

- Balzer, F.** 1931. Echiurida. Pp. 62–168 in Kükenthal, W. & Krumbach, T. (Eds.), *Handbuch der Zoologie*, vol. 2, part 9. de Gruyter, Berlin.
- Bock, S.** 1942. On the structure and affinities of ‘*Thalassema*’ *lankesteri* Herdman and the classification of the group Echiuroidea. *Göteborgs Kungliga Vetenskaps- och Vitterhets-Samhälles Handlingar, Sjätte följdern*, (B)2(6): 1–94.
- Dawydoff, C.** 1959. Classe des Echiuriens. Pp. 855–907 in Grassé, P.–P. (Ed.), *Traité de Zoologie*, vol. 5, fasc. 1. Masson, Paris.
- Edmonds, S.J.** 1987. Echiurans from Australia (Echiura). *Records of the South Australian Museum*, 32: 119–138.
- Edmonds, S.J.** 2000. Phylum Echiura. Pp. 353–374 in Beesley, P.L. et al. (Eds.), *Polychaetes and allies: the southern synthesis. (Fauna of Australia, vol. 4A)*. CSIRO Publishing, Melbourne.
- Fisher, W.K.** 1946. Echiuroid worms of the North Pacific Ocean. *Proceedings of the United States National Museum*, 96: 215–292.
- Ikeda, I.** 1901 (December). A new species of *Thalassama* [sic] having a tape-worm like proboscis. *Dobutsugaku Zasshi [The Zoological Magazine, Japan]*, 13(158): 382–392.
- Ikeda, I.** 1902 (January). On the plate of a new echiuroid animal (*Thalassima* [sic] sp.). *Dobutsugaku Zasshi [The Zoological Magazine, Japan]*, 13(159): plate.
- Ikeda, I.** 1904. The Gephyrea of Japan. *Journal of the College of Science, Imperial University of Tokyo*, 20(4): 1–87.
- Ikeda, I.** 1907. On three new and remarkable species of echiuroids (*Bonellia miyajimai*, *Thalassema taenioides* and *T. elegans*). *Journal of the College of Science, Imperial University of Tokyo*, 21(8): 1–64.
- Ito, T.** 1965. The class Echiuroidea. Pp. 577–581 in Okada, K., Uchida, S. & Uchida, T. (Eds.), *New Illustrated Encyclopedia of the fauna of Japan*, vol. 1. Hokuryukan, Tokyo. [In Japanese].
- McKenzie, J.D. & Hughes, D.J.** 1999. Integument of *Maxmuelleria lankesteri* (Echiura), with notes on bacterial symbionts and possible evidence of viral activity. *Invertebrate Biology*, 118: 296–309.
- Nishikawa, T.** 1992. The phylum Echiura. Pp. 306–309 in Nishimura, S. (Ed.), *Guide to seashore animals of Japan with color pictures and keys*, vol. 1. Hoikusha, Osaka.
- Nishikawa, T.** 1998. Nomenclatural remarks on the family-group names of the phylum Echiura. *Proceedings of the Biological Society of Washington*, 111(2): 249–256.
- Satô, H.** 1931. Report of the biological survey of Mutsu Bay. 20. Echiuroidea. *Science Report of the Tôhoku Imperial University*, (Series 4, Biology)6: 171–184.
- Satô, H.** 1935. Class Echiuroidea, Class Sipunculoidea, Class Priapulioidea. *Fauna Nipponica*, 6: 1–94. [In Japanese].
- Satô, H.** 1939. Studies on the Echiuroidea, Sipunculoidea and Priapulioidea of Japan. *Science Report of the Tôhoku Imperial University*, (Series 4, Biology)14: 339–460.
- Stephen, A.C. & Edmonds, S.J.** 1972. *The phyla Sipuncula and Echiura*. vii, 528 pp. British Museum (Natural History), London.
- Wharton, L.D.** 1913. A description of some Philippine Thalassemae with a revision of the genus. *Philippine Journal of Science*, (D, Biology)8(4): 243–270.
- Yasuda, A.** 1902 (February). A correction:– *Thalassema halotainai* [sic] on p. 392, vol. xiii should read *Thalassema taenioides*. *Dobutsugaku Zasshi [The Zoological Magazine, Japan]*, 14(160): 75.

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Case 3120a

LIOCHELIDAE, fam. nov. (Scorpiones): proposed introduction as a substitute name for ISCHNURIDAE Simon, 1879, as an alternative to the suggested emendment of ISCHNURINAE Fraser, 1957 (Insecta, Odonata) to ISCHNURAINAE in order to remove homonymy

Victor Fet

*Department of Biological Sciences, Marshall University,
West Virginia 25755, U.S.A. (e-mail: fet@marshall.edu)*

Günter Bechly

*Staatliches Museum für Naturkunde, Rosenstein 1, D-70191 Stuttgart,
Germany (e-mail: bechly.smns@naturkundemuseum-bw.de)*

Abstract. The purpose of this application is to establish the new scorpion family name LIOCHELIDAE Fet & Bechly, 2001 (1879) as a substitute name for ISCHNURIDAE Simon, 1879, which is a homonym of the widely used damselfly (Odonata) name ISCHNURINAE Fraser, 1957. In a previous application (BZN 57: 26–28) the authors proposed emending the latter name to ISCHNURAINAE, but the introduction of LIOCHELIDAE avoids this undesirable change. The type genus of the LIOCHELIDAE is *Liocheles* Sundevall, 1833, which is in wide use as the valid senior synonym of the long abandoned name *Ischnurus* C.L. Koch, 1837 (the type genus of ISCHNURIDAE Simon, 1879).

Keywords. Nomenclature; taxonomy; Scorpiones; Odonata; ISCHNURIDAE; LIOCHELIDAE; COENAGRIONIDAE; ISCHNURINAE; *Liocheles*; *Ischnura*; scorpions; damselflies.

1. As mentioned in our original application (Case 3120; BZN 57: 26–28), the scorpion family name ISCHNURIDAE Simon, 1879 (type genus *Ischnurus* C.L. Koch, 1837) is widely used, and so also is the homonymous damselfly subfamily name ISCHNURINAE Fraser, 1957 (based on *Ischnura* Charpentier, 1840).

2. To remove the homonymy we proposed emending the damselfly subfamily name to ISCHNURAINAE. However, as noted in para. 2 of our original application, the scorpion name *Ischnurus* was synonymized with *Hormurus* Thorell, 1876 by Karsch (1880), and in turn *Hormurus* was synonymised with *Liocheles* Sundevall, 1833 by Pocock (1902). *Ischnurus* has not been used for the genus for almost a century. In recent times *Liocheles* has been in universal use, but authors have continued to include *Liocheles* and other genera in a family which they call ISCHNURIDAE Simon, 1879, mostly unaware that *Ischnurus* has long disappeared from use.

3. There is much to be said for basing a family-group name on the valid name of an included genus, and adoption of LIOCHELIDAE would not only achieve this but, more importantly, would obviate any reason for changing the very widely used damselfly name ISCHNURINAE Fraser, 1957 on grounds of homonymy.

4. Accordingly we here establish the new family name LIOCHELIDAE. The type genus is *Liocheles* Sundevall, 1833; as we mentioned in para. 2 of our original application the type species of *Liocheles* is *Scorpio australasiae* Fabricius, 1775 by monotypy. In compliance with Article 13.1.2 of the Code we state that the characters of the LIOCHELIDAE are those given in the diagnosis of ISCHNURIDAE Simon, 1879 by Prendini (2000, pp. 33–34).

5. The introduction of LIOCHELIDAE as a substitute name for ISCHNURIDAE Simon, 1879 requires a Commission ruling because the latter name is not invalidated by being based on a junior generic synonym (Article 40.1 of the Code); furthermore Simon's name is the senior homonym of the damselfly ISCHNURINAE. By analogy with Article 40.2.1 we propose that LIOCHELIDAE should take the priority of Simon's replaced name, as would happen automatically had the replacement been made before 1961 and the new name been in use; this would make it the senior subjective synonym not only of ISCHNURIDAE Simon but also of any later name (such as HORMURINI Laurie, 1896, which was based on the junior synonym *Hormurus* and only used four times, and not at all since 1925).

6. For the reasons given above we withdraw our formal proposals (1), (4) and (5) relating to family-group names published in BZN 57: 27, para. 5, and substitute those below. In addition to these the proposed Official List entry for *Liocheles* should record that it is the type genus of LIOCHELIDAE Fet & Bechly, 2001 (1879).

7. The International Commission on Zoological Nomenclature is accordingly asked:

(1) to use its plenary power:

- (a) to rule that the name LIOCHELIDAE Fet & Bechly, 2001 is to take the priority of, and be treated as senior to, the name ISCHNURIDAE Simon, 1879;
- (b) to rule that ISCHNURINAE Fraser, 1957 (Odonata) is not to be treated as invalid by reason of being a junior homonym of ISCHNURIDAE Simon, 1879 (Scorpiones);

(2) to place on the Official List of Family-Group Names in Zoology the following names:

- (a) ISCHNURINAE Fraser, 1957 (type genus *Ischnura* Charpentier, 1840; Odonata), with the endorsement that it is not to be treated as invalid by reason of being a junior homonym of ISCHNURIDAE Simon, 1879 (Scorpiones);
- (b) LIOCHELIDAE Fet & Bechly, 2001 (1879) (type genus *Liocheles* Sundevall, 1833; Scorpiones), with the endorsement that it is to take the priority of, and be treated as senior to, the name ISCHNURIDAE Simon, 1879;

(3) to place on the Official Index of Rejected and Invalid Family-Group Names in Zoology the name ISCHNURIDAE Simon, 1879 (type genus *Ischnurus* C.L. Koch, 1837; Scorpiones), with the endorsement that it is to be treated as junior to LIOCHELIDAE Fet & Bechly, 2001 (1879) (type genus *Liocheles* Sundevall, 1833).

Additional reference

(for other references see BZN 57: 27–28)

Prendini, L. 2000. Phylogeny and classification of the superfamily Scorpionoidea Latreille, 1802 (Chelicerata, Scorpiones): an exemplar approach. *Cladistics*, **16**: 1–78.

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).

Case 3081***Alucita ochrodactyla* [Denis & Schiffermüller, 1775] (currently *Gillmeria* or *Platyptilia ochrodactyla*; Insecta, Lepidoptera): proposed conservation of usage of the specific name by the designation of a neotype for *Phalaena tetradactyla* Linnaeus, 1758**

D.J.L. Agassiz

The Natural History Museum, Cromwell Road, London SW7 5BD, U.K.
(e-mail: david@agassiz.worldonline.co.uk)

Abstract. The purpose of this application is to conserve the specific name of the European plume moth (family PTEROPHORIDAE) *Gillmeria* (or *Platyptilia ochrodactyla*) ([Denis & Schiffermüller], 1775). An old specimen of *Phalaena tetradactyla* Linnaeus, 1758 is of this taxon, and it has recently been proposed that *ochrodactyla*, the name which has always been used, should be replaced by *tetradactyla*. However, the type status of this specimen is doubtful and *tetradactyla* has also been applied to two other species, now known as *Merrifieldia tridactyla* (Linnaeus, 1758) and *M. leucodactyla* ([Denis & Schiffermüller], 1775). It is likely that *tridactyla* and *tetradactyla* were synonyms when originally published, and it is proposed that the lectotype of *Phalaena tridactyla* Linnaeus, 1758 should be designated as neotype of *P. tetradactyla* and that the former should be selected as the valid specific name of the *Merrifieldia* taxon. This will both conserve *Gillmeria ochrodactyla* and eliminate the confused application of *tetradactyla* to more than one species.

Keywords. Nomenclature; taxonomy; Lepidoptera; Microlepidoptera; PTEROPHORIDAE; *Gillmeria ochrodactyla*; *Platyptilia ochrodactyla*; *Merrifieldia tridactyla*; *Merrifieldia leucodactyla*; plume moths.

1. This application concerns three plume moths in the family PTEROPHORIDAE, called here for convenience species A, B and C. Species A is placed in the subfamily PLATYPTILIINAE and is known as *Gillmeria* (or *Platyptilia ochrodactyla*) ([Denis & Schiffermüller], 1775). Species B and C are superficially very similar to each other and are placed in the PTEROPHORINAE; they are now known as *Merrifieldia tridactyla* (Linnaeus, 1758) and *M. leucodactyla* ([Denis & Schiffermüller], 1775).

2. Species A is widespread in Europe, its larvae feeding on *Tanacetum* (tansy). Until 1993 it had always been known, in a very extensive literature, by the specific name *ochrodactyla*, attributed often to Hübner (1805, pl. 3) but also to the original authors Denis & Schiffermüller (1775, p. 145). Robinson & Nielsen (1983, p. 234) examined the Linnaean collection held by the Linnean Society of London and found a specimen of this species labelled as *Phalaena tetradactyla* (although the abdomen is from a *Leioptilus* species and is glued to the metathorax). They stated 'the labels on the above specimen are considered by the present authors to have been wrongly applied at some time in the past and we do not consider [it] to possess type status'; they did not replace *ochrodactyla* by *tetradactyla*.

3. Species B and C are also widespread in Europe; their larvae feed on *Thymus* (thyme) and related plants. B was known by the specific name *fuscolimbatus* Duponchel, 1845 (published in combination with *Pterophorus*), or sometimes *icterodactylus* Mann, 1855 (also published in *Pterophorus*), until Arenberger (1985, p. 244) examined the genitalia of the lectotype of the nominal species *Phalaena tridactyla* in the Linnean Society collection which had been designated by Robinson & Nielsen (1983, p. 234) and found it to be a specimen of species B (i.e. *fuscolimbatus*) rather than of species C, which had until then been called by the specific names *tridactyla* or *tetradactyla* (both of Linnaeus, 1758, p. 542). As a result of this discovery Arenberger (1985) transferred the name *tridactyla* to species B, replacing *fuscolimbatus*, and raised the name *leucodactyla* [Denis & Schiffermüller], 1775 from synonymy for species C (the *tridactyla* or *tetradactyla* of authors). He designated a neotype for the nominal species *Alucita leucodactyla* [Denis & Schiffermüller], 1775 (p. 146).

4. When changing the names of species B and C as above, Arenberger (1985) stated that '*Phalaena Alucita tetradactyla* L. is not to be considered a valid name for *tridactyla* auctt. [i.e. species C] because the type specimen turns out to be *Platyptilia ochrodactyla* D. & S., with an abdomen from a *Leioptilus* sp. glued to it'; in saying this he did not mention the doubt about the specimen which had been expressed by Robinson & Nielsen in 1983 (see para. 2 above). Arenberger did not explicitly apply the name *tetradactyla* to species A (*ochrodactyla*) but implied that this should be done. Gielis (1993) made this change and has been followed by some authors of regional lists (e.g. Huemer & Tarmann, 1993; Arenberger et al., 1995; Gielis, 1996; Karsholt & Razowski, 1996; Novák & Liška, 1997; de Prins, 1998) but not by others (e.g. Bond, 1995; Leraut, 1997; Bradley, 1998 & 2000; Karsholt & Nielsen, 1998; Buszko & Nowacki, 2000). However, inspection of the descriptions of *tetradactyla* in both 1758 and 1761 shows that the name cannot have applied to the platyptiliine species A (*ochrodactyla*) which is very different from B and C. The specific name of *Phalaena tetradactyla* Linnaeus, 1758 has been applied to all three of the species mentioned here: to species A (as a valid name by Gielis (1993, 1996) and some other recent authors mentioned above), to species B (in the synonymy of *tridactyla*) and to species C as a valid name (e.g. Spuler, 1910; Meyrick, 1928) or in the synonymy of *tridactyla* by many authors (see Robinson & Nielsen, 1983).

5. The confusion between the application of the names *tridactyla* and *tetradactyla* began with Linnaeus himself. In 1758 he (p. 542) described *Phalaena tridactyla* (*Phalaena* species no. 302) and *P. tetradactyla* (no. 303), with minor colour differences between them: the wings were respectively 'pallid with white lines' and 'yellowish' (with no mention of lines). In 1761 (pp. 370–371) he used the same words for *P. tetradactyla* ('lineis albis') that he had previously used for *P. tridactyla*. Stainton (1864, p. 12) mentioned this situation, and Tutt (1890) suggested that Linnaeus had perhaps described the male and female of the same taxon as distinct species. Tutt (1890, pp. 138–139) pointed out that the white lines of the species called *tridactyla* by Linnaeus in 1758 but *tetradactyla* in 1761 were characteristic of the female of the species then (1890) known as *Aciptilia tetradactyla*; this is species C, known as *Merrifieldia leucodactyla* since Arenberger (1985). Tutt was not familiar with species B.

6. Since usage of the name *tetradactyla* has been thoroughly confused, it seems appropriate to place beyond dispute its probably original synonymy with *tridactyla*,

suggested by Tutt (1890) and accepted by Robinson & Nielsen (1983) and others. This can be done by designating the lectotype of *Phalaena tridactyla* established by Nielsen & Robinson (1983; see para. 3 above) as the neotype of *P. tetradactyla*; the simultaneously published objective synonym *tridactyla* can then be selected, under Article 24.2 of the Code, as the valid specific name for the taxon (species B, previously *fuscolimbata*) as adopted by Arenberger (1985; para. 3 above) and followed by subsequent authors. This action will protect the usage of the specific name of *Gillmeria* (or *Platyptilia*) *ochrodactyla* [Denis & Schiffermüller], 1775 for the platyptiliine species A which had been universal until Gielis (1993) adopted *tetradactyla* on the basis of a specimen which was probably not original (see para. 2 above).

7. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to set aside all previous fixations of name-bearing type for the nominal species *Phalaena tetradactyla* Linnaeus, 1758 and to designate as neotype the lectotype of *P. tridactyla* Linnaeus, 1758 designated by Robinson & Nielsen (1983);
- (2) to give the name *Phalaena tridactyla* Linnaeus, 1758 precedence over the name *P. tetradactyla* Linnaeus, 1758 (an objective synonym by the ruling in (1) above);
- (3) to place on the Official List of Specific Names in Zoology the following names:
 - (a) *tridactyla* Linnaeus, 1758, as published in the binomen *Phalaena tridactyla* and as defined by the lectotype designated by Robinson & Nielsen (1983);
 - (b) *ochrodactyla* [Denis & Schiffermüller], 1775, as published in the binomen *Alucita ochrodactyla*;
 - (c) *leucodactyla* [Denis & Schiffermüller], 1775, as published in the binomen *Alucita leucodactyla* and as defined by the neotype designated by Arenberger (1985);
- (4) to place on the Official Index of Rejected and Invalid Specific Names in Zoology the name *tetradactyla* Linnaeus, 1758, as published in the binomen *Phalaena tetradactyla* (a junior objective synonym of *P. tridactyla* Linnaeus, 1758 by the precedence selected in (2) above).

References

- Arenberger, E. 1985. Zur Synonymie einiger Pterophoridae (Lepidoptera). *Entomologische Zeitschrift*, **95**(17): 244–250.
- Arenberger, E., Gaedike, R., Scholz, A. & Zangheri, S. 1995. Lepidoptera Urodoidea, Schreckensteinoidea, Epermenioidea, Alucitoidea, Pterophoroidea, Copromorphoidea. In: Minelli, A., Ruffo, S. & La Posta, S. (Eds.), *Checklist delle specie della fauna italiana*, no. 86. Calderini, Bologna.
- Bond, K.G.M. 1995. Irish microlepidoptera check-list. *Bulletin of the Irish Biogeographical Society*, **18**: 176–262.
- Bradley, J.D. 1998 (and 2000). *Checklist of Lepidoptera recorded from the British Isles*. 106 pp. Fordingbridge.
- Buszko, J. & Nowacki, J. 2000. *The Lepidoptera of Poland, a distributional checklist*. 178 pp.
- [Denis, J.N.C.M. & Schiffermüller, I.]. 1775. *Ankündigung eines systematisches Werkes von den Schmetterlinge der Wiener Gegend*. 323 pp., 3 pls. Wien.

- Gielis, C.** 1993. Generic revision of the superfamily Pterophoroidea (Lepidoptera). *Zoologische Verhandelingen*, **290**: 1–139.
- Gielis, C.** 1996. Pterophoridae. In: Huemer, P., Karsholt, O. & Lyneborg, L. (Eds.), *Microlepidoptera of Europe*, vol. 1. 222 pp. Stenstrup.
- Hübner, J.** [1805]. *Sammlung europäischer Schmetterlinge*, vol. 8. Augsburg.
- Huemer, P. & Tarmann, G.** 1993. *Die Schmetterlinge Österreichs (Lepidoptera)*. 224 pp. Innsbruck.
- Karsholt, O. & Nielsen, P.S.** 1998. *Revised catalogue of the Lepidoptera of Denmark*. 144 pp. Copenhagen.
- Karsholt, O. & Razowski, J.** 1996. *The Lepidoptera of Europe, a distributional checklist*. 380 pp. Stenstrup.
- Leraut, P.J.A.** 1997. *Liste systématique et synonymique des lépidoptères de France, Belgique et Corse*, (Ed. 2). 526 pp. Paris.
- Linnaeus, C.** 1758. *Systema Naturae*, Ed. 10, vol. 1. 824 pp. Salvii, Holmiae.
- Linnaeus, C.** 1761. *Fauna Suecica, Editio altera*. xlvi, 578 pp. Stockholmiae.
- Meyrick, E.** 1928. *Revised Handbook of British Lepidoptera*. vi, 914 pp. London.
- Novák, I. & Liška, J.** 1997. Catalogue of the Bohemian Lepidoptera. *Klapalekiana*, **33**, Supplementum. 159 pp.
- Prins, W. de.** 1998. *Catalogue of the Lepidoptera of Belgium*. 236 pp. Brussels.
- Robinson, G.S. & Nielsen, E.S.** 1983. The Microlepidoptera described by Linnaeus and Clerck. *Systematic Entomology*, **8**: 191–242.
- Spuler, A.** 1910. *Die Schmetterlinge Europas*, vol. **2**. 523 pp. Stuttgart.
- Stainton, H.T.** 1864. A few words on the species of *Pterophorus* noticed by Linné. *Entomologist's Monthly Magazine*, **1**: 11–14.
- Tutt, J.W.** 1890. Notes on the synonymy of Haworth's 'Plumes'. *Entomologist's Record and Journal of Variation*, **1**: 90–91.

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Case 3190***Chlorops meigenii* Loew, 1866 (Insecta, Diptera): proposed conservation of the specific name**

Emilia P. Nartshuk

Zoological Institute, Russian Academy of Sciences, St Petersburg 199034, Russia (e-mail: chlorops@zin.ru)

Abstract. The purpose of this application is to conserve the name of the Palaearctic grassfly *Chlorops meigenii* Loew, 1866 (family CHLOROPIDAE). This is a junior primary homonym of *C. meigenii* Fallén, 1823, but Fallén's name has been treated as a junior synonym of *Cerodontha denticornis* (Panzer, 1806; AGROMYZIDAE) since 1830 and the case is referred under Article 23.9.5 of the Code.

Keywords. Nomenclature; taxonomy; Diptera; CHLOROPIDAE; *Chlorops*; *Chlorops meigenii*; grassflies; Palaearctic.

1. *Chlorops meigenii* was described by Loew (1866, p. 43), and the name has since been used in many papers for a rather common and widely distributed Palaearctic species of grassfly belonging to the genus *Chlorops* Meigen, 1803 (family CHLOROPIDAE). Some selected references are Duda (1932–33, p. 185), Zuska (1960, p. 395), Nartshuk, Smirnov & Fedoseeva (1970, p. 437), Smirnov & Fedoseeva (1976, p. 1672), Dély-Draskovits (1978, p. 30), Beschovski (1980, p. 21) and Kanmiya (1983, p. 314).

2. Tschirnhaus (1989, p. 296) noted that *Chlorops meigenii* Loew, 1866 is a junior primary homonym of *C. meigenii* Fallén, 1823 (p. 9). *C. meigenii* Fallén is a member of the AGROMYZIDAE, and ever since Meigen (1830, p. 175) has been treated as a junior synonym of *Cerodontha denticornis* (Panzer, 1806, tab. 22).

3. Because of its primary homonymy with *C. meigenii* Fallén the name *C. meigenii* Loew was permanently invalid under the provisions of the 3rd edition (1985) of the Code, and accordingly Tschirnhaus (1989) introduced its subjective synonym *Chlorops rufescens* Oldenberg, 1923 (p. 313; originally described as a variety of *C. nasutus* (Schrank, 1781)) as a substitute name. However, *C. rufescens* Oldenberg is itself a junior primary homonym (of *C. rufescens* Coquillett, 1910, a widely distributed Nearctic species) and so cannot be used as valid. No other synonyms of *C. meigenii* Loew are known.

4. *C. meigenii* Loew, 1866 and *C. meigenii* Fallén, 1823 have not been considered as congeneric since the early 19th-century and, as mentioned in para. 2 above, Fallén's name has not been used as valid since 1830. Under Article 23.9.5 of the current Code the case should be referred to the Commission and usage of *C. meigenii* Loew is to be maintained.

5. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to rule that the specific name of *Chlorops meigenii* Loew, 1866 is not invalid by reason of being a junior primary homonym of *Chlorops meigenii* Fallén, 1823;
- (2) to place on the Official List of Specific Names in Zoology the name *meigenii* Loew, 1866, as published in the binomen *Chlorops meigenii* (not invalid by the ruling in (1) above).

Acknowledgement

I would like to thank Dr I.M. Kerzhner for his help with preparing this application.

References

- Beschovski, V.** 1980. Faunistic and taxonomic investigation on the genus *Chlorops* Meigen, 1803 (Diptera, Chloropidae) from Bulgaria, with description of a new subgenus. *Nouvelle Revue d'Entomologie*, **8**(46): 397–402.
- Dély-Draskovits, Á.** 1978. Beiträge zur Kenntnis der europäischen Arten der Gattung *Chlorops* Meigen, 1803 (Diptera, Chloropidae). *Acta Zoologica Academiae Scientiarum Hungaricae*, **24**: 27–49.
- Duda, O.** 1932–1933. Chloropidae. Pp. 1–248 in Lindner, E. (Ed.), *Die Fliegen der palaearktischen Region*, vol. 6, part 1.
- Fallén, C.F.** 1823. Phytomyzides et Ochtidae. iv, 10 pp., 24 pls. in: *Diptera Sveciae . . .*, vol. 2. Lund.
- Kanmiya, K.** 1933. A systematic study of the Japanese Chloropidae (Diptera). *Memoirs of the Entomological Society of Washington*, **11**: 1–370.
- Loew, H.** 1866. Über die bisher in Schlesien aufgefundenen Arten der Gattung *Chlorops* Macq. *Zeitschrift für Entomologie* (Breslau), **20**: 3–96.
- Meigen, J.W.** 1830. *Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten*. 401 pp. Humm.
- Nartshuk, E.P., Smirnov, E.S. & Fedoseeva, L.I.** 1970. Family Chloropidae. Pp. 399–439 in Bey-Bienko, G.Y. (Ed.), *Opredelitel nasekomykh evropeiskoi chasti SSSR*, vol. 5(2). Nauka, Leningrad. [English translation, 1998. Pp. 667–731 in Bey-Bienko, G.Y. & Steyskal, G.C. (Eds.), *Key to the insects of the European part of the USSR*, vol. 5(2). Smithsonian Institution Library, Washington.]
- Oldenberg, L.** 1923. Neue Acalyptraten (Dipt.) meiner Ausbeute. *Deutsche Entomologische Zeitschrift*, **1923**: 307–319.
- Panzer, G.W.F.** 1806. *Faunae Insectorum Germanicae . . .*, Heft 104. Nürnberg.
- Smirnov, E.S. & Fedoseeva, L.I.** 1976. Grassflies of the genus *Chlorops* (Diptera, Chloropidae) in the fauna of the USSR. A key. *Zoologicheskyy Zhurnal*, **55**(11): 1659–1676. [In Russian, with German summary.]
- Tschirnhans, M. von.** 1989. P. 296 in Franz, H., *Die Nordost-Alpen im Spiegel ihrer Landtierwelt*. IV/2. Diptera Cyclorrhapha. Innsbruck.
- Zuska, J.** 1960. Bemerkungen über einige paläarktische Arten der Gattung *Chlorops* Meigen und Beschreibung einer neuen Art aus der Tschechoslowakei (Diptera, Chloropidae). *Acta Societatis Entomologicae Cechosloveniae*, **57**(4): 387–396.

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Case 3197***Glassia* Davidson, 1881 (Brachiopoda): proposed designation of *G. elongata* Davidson, 1881 as the type species**

Paul Copper

Laurentian University, Sudbury, Canada P3E 2C6
(e-mail: pcopper@nickel.laurentian.ca)

Abstract. The purpose of this application is to conserve the current usage of *Glassia* Davidson, 1881 and *Lissatrypa* Twenhofel, 1914 for two important genera of smooth-shelled Silurian brachiopods with radically different internal structure. Davidson designated *Atrypa obovata* Sowerby, 1839 as the type species of *Glassia*, but this species is now known from its internal structure, particularly its dorsally directed spiralia, to be a species of the genus *Lissatrypa* (type species *L. atheroidea* Twenhofel, 1914). To avoid synonymy between *Glassia* and *Lissatrypa*, and between the nominal families based on them, it is proposed that *Glassia elongata* Davidson, 1881, with medially directed spiralia, be designated as type of *Glassia*.

Keywords. Nomenclature; taxonomy; Brachiopoda; GLASSIIDAE; LISSATRYPIDAE; *Glassia*; *Lissatrypa*; *Glassia elongata*; *Lissatrypa atheroidea*; Silurian.

1. Davidson (1881a, p. 11) established the nominal genus *Glassia* to include smooth atrypides of Silurian age with medially directed barrel-shaped spiralia and designated *Atrypa obovata* Sowerby, 1839 (p. 618, pl. 8, figs. 8, 9) as the type species. Later the same year he (Davidson, 1881b, p. 148) established the nominal species *Glassia elongata*, which he believed to be closely related to *Atrypa obovata* although he had not examined the spiralia of *A. obovata*. The internal structure of *Glassia elongata* is very different from that of *Atrypa obovata* in having medially directed spiralia, lacking pedicle collars, and with different teeth and delthyria (as pointed out by Glass in Davidson, 1881a, b), and these differences are so great that they may be assigned to different families.

2. Twenhofel (1914, p. 31) established the genus *Lissatrypa* for smooth atrypides having dorsally directed spiralia, with his new species *Lissatrypa atheroidea* (p. 33) as type species by original designation and monotypy. In the same paper Twenhofel (p. 31) established the subfamily LISSATRYPINAE to include smooth atrypides with dorsally directed conical spiralia (see also Copper, 1973). In 1929 Schuchert & LeVene (p. 20) established the subfamily GLASSIINAE, based on the interpretation of *Glassia* by Davidson, and typified by medially directed spiralia. Both subfamilies have been elevated to family rank as LISSATRYPIDAE and GLASSIIDAE, within the suborder Lissatrypidina Copper, 1996.

3. As part of my research in connection with the second edition of the *Treatise on Invertebrate Paleontology*, I sectioned specimens in British collections labelled as *Atrypa obovata* (the nominal type species of *Glassia*) and identical in size and shape to the specimen illustrated by Sowerby (1839, pl. 8, figs. 8–9) as *Atrypa obovata* from

Mathon Lodge, Malvern Hills. I discovered (Copper, 1996, pp. 919–922) that these shells of *A. obovata* possessed dorsally directed spiralia rather than the medially directed spiralia diagnostic of *Glassia* as described by Davidson (1881). Additionally, such shells of *A. obovata* possessed other internal characters such as muscle scars, the nature of the shell wall, dental cavities, pedicle callist and pedicle collar diagnostic of the generic characters shown by the type species of *Lissatrypa*, i.e. *Lissatrypa atheroidea* (see Copper, 1973). Since the type species of *Glassia* (*Atrypa obovata*) and of *Lissatrypa* (*L. atheroidea*) have the same internal structure diagnostic for *Lissatrypa*, the species are congeneric and *Lissatrypa* is a junior subjective synonym of *Glassia*. Had Davidson been aware in 1881 of the internal features of *Atrypa obovata* he doubtless would not have designated it as the type species of *Glassia*, which he stated had the primitive character of medially directed spiralia.

4. To resolve the problem of synonymy between the two important and well-recognized genera *Glassia* and *Lissatrypa*, and the family-group taxa based on them, I propose that *Glassia elongata* Davidson be designated as type species of *Glassia*, to replace the species *Atrypa obovata* originally designated by Davidson. This accords with the intention of Davidson (1881), Schuchert & LeVene (1929) and others who diagnosed the genus *Glassia* as having medially directed spiralia as seen in *Glassia elongata*.

5. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to set aside all previous fixations of type species for the nominal genus *Glassia* Davidson, 1881 and to designate *Glassia elongata* Davidson, 1881 as the type species;
- (2) to place the following names on the Official List of Generic Names in Zoology:
 - (a) *Glassia* Davidson, 1881 (gender: feminine), type species by designation in (1) above *Glassia elongata* Davidson, 1881;
 - (b) *Lissatrypa* Twenhofel, 1914 (gender: feminine), type species by original designation and monotypy *Lissatrypa atheroidea* Twenhofel, 1914;
- (3) to place the following names on the Official List of Specific Names in Zoology:
 - (a) *elongata* Davidson, 1881, as published in the binomen *Glassia elongata* (specific name of the type species of *Glassia* Davidson, 1881);
 - (b) *atheroidea* Twenhofel, 1914, as published in the binomen *Lissatrypa atheroidea* (specific name of the type species of *Lissatrypa* Twenhofel, 1914).

References

- Copper, P. 1973. The type species of *Lissatrypa* (Silurian Brachiopoda). *Journal of Paleontology*, **47**(1): 70–76.
- Copper, P. 1996. New and revised genera of Wenlock–Ludlow atrypids (Silurian Brachiopoda) from Gotland, Sweden, and the United Kingdom. *Journal of Paleontology*, **70**(6): 913–923.
- Davidson, T. 1881a. On genera and species of spiral-bearing Brachiopoda, from specimens developed by the Rev. Norman Glass. *Geological Magazine*, (2)**8**(1): 1–13.
- Davidson, T. 1881b. Descriptions of new Upper Silurian Brachiopoda from Shropshire. *Geological Magazine*, (2)**8**(4): 145–156.
- Schuchert, C. & LeVene, C.M. 1929. *Brachiopoda. Fossilium Catalogus, 1, Animalia*, Pars 42. 140 pp. Junk, Berlin.

- Sowerby, J. de C.** 1839. Fossils of the Lower Ludlow Rock. Pp. 616–622 in Murchison, R.I., *The Silurian System, founded on geological researches in the counties of Salop, Hereford, Radnor, Montgomery, Caermarthen, Brecon, Pembroke, Monmouth, Gloucester, Worcester, and Stafford*, part 2. John Murray, London.
- Twenhofel, W.H.** 1914. The Anticosti island faunas. *Museum Bulletin, Canadian Geological Survey*, **3**: 1–35.
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Case 3195***Polonograptus* Tsegelnjuk, 1976 (Graptolithina): proposed designation of *P. podoliensis* Přibyl, 1983 as the type species**

J.F.V. Riva

Quebec Geoscience Centre, University of Quebec, C.P. 7500, Ste-Foy, QC G1V 4C7, Canada (e-mail: jriva@X1.nrcan.gc.ca)

T.N. Koren'

VSEGEI, Srednij Prospect 74, 199026 St Petersburg, Russia

R.B. Rickards

Department of Earth Sciences, Downing Street, University of Cambridge, Cambridge CB2 3EQ, U.K.

Abstract. The purpose of this application is to conserve the current usage of the generic name *Polonograptus* Tsegelnjuk, 1976 for an Upper Ludlow monograptid. Přibyl (1983) considered the originally designated type species, *Monograptus butovicensis* Bouček, 1936, to be composite; he restricted the nominal species *M. butovicensis* to its type material and established *Polonograptus podoliensis* for strongly curved specimens of Upper Ludlow age which he had previously included in *M. butovicensis*. Urbanek & Teller (1997) suggested that *P. podoliensis* should be designated as the type species of *Polonograptus*, and this action is now proposed.

Keywords. Nomenclature; taxonomy; Graptolithina; *Polonograptus*; *Polonograptus podoliensis*; Silurian.

1. Bouček (1936, pl. I, figs. 6, 7) established the species *Monograptus butovicensis* on the basis of two distal fragments of a *Monograptus* characterized by a gentle ventral curvature (faiblement ventralment courbés) and long, narrow, overlapping thecae, slightly inclined to their axis. No proximal end was known. The type material was from the Lower Ludlow at Butovice, Bohemia, Czech Republic.

2. Jaeger (1975) identified and figured as *M. butovicensis* two short but strongly ventrally curved monograptids with a complete, thin proximal end. One of the specimens was from the Upper *Cardiola* Beds at Cellon, Carnia, Austria, and the other from the uppermost Ludlow Kopanina beds near Konjehrusy, Bohemia, Czech Republic.

3. Tsegelnjuk (1976, pp. 124–125) established the nominal genus *Polonograptus* for early Ludlow monograptids characterized by 'a long rhabdosome, ventrally curved proximally, arching in the middle and almost straight distally; thecae consisting of smooth, thin, long tubules separated by long interthecal septa, with straight *Pristiograptus*-like apertural margins'. He designated *M. butovicensis* as the type species, and included in *Polonograptus* a new species *P. licis* based on four middle and

distal fragments, but no proximal ends. He included the genus in the family CUCULLOGRAPTIDAE Urbanek, 1958.

4. Přibyl (1981, p. 373), unaware of the existence of the genus *Polonograptus*, proposed the genus *Alexandrograptus* with *M. butovicensis* as the type species. He refigured one of Bouček's original fragments of *M. butovicensis* and the strongly curved specimen from the Kopanina beds, which had been previously figured by Jaeger (1975). The distal end of the Kopanina specimen is only slightly larger than that of *Polonograptus*, suggesting that it could be equivalent to the proximal end missing in the types of *M. butovicensis*. Becoming aware when the manuscript was in press of the prior existence of *Polonograptus*, Přibyl, in a footnote, referred to *Alexandrograptus* as 'an invalid genus'. This disclaimer of *Alexandrograptus* in the original publication means that it is not an available name (Article 11.5 of the Code).

5. Two years later Přibyl restricted *Polonograptus butovicensis* to its type material and (1983, p. 158) proposed the species *Polonograptus podoliensis* for the strongly curved and complete specimens from Cellon, Carnia, Austria, and Kopanina, Bohemia, Czech Republic which he had previously (1981) included in *P. butovicensis*. He also pointed out that *P. butovicensis* was from the *Neodiversograptus nilssoni* Biozone of the Lower Ludlow, whereas *P. podoliensis* was from the *Neocucullograptus inexpectatus* Biozone of the Upper Ludlow. He excluded *P. licis* from *Polonograptus* because of thecal dissimilarity and much smaller rhabdosome width.

6. Rickards, Davidson & Banks (1993) established the subspecies *Polonograptus podoliensis australis* for ventrally curved and gradually widening monograptids from the *kozlowskii* Biozone of the uppermost Ludlow of Tasmania, Australia. This species has the simple, slightly curved, overlapping thecae of *P. podoliensis*, but a more gradually widening rhabdosome never reaching the width of *P. podoliensis*.

7. Storch (1995) emended the diagnosis of *Polonograptus* by adding 'the other typical species of the genus' such as *Polonograptus egregius* (Urbanek, 1970) and *Polonograptus podoliensis* Přibyl. He differentiated *Polonograptus* from its predecessors, such as *Bohemograptus* and *Neolobograptus*, by the prominent elongation of the thecae beginning at the level of th 2 and the 'sequence of the thecal distances'. He also noted that the thecal apertures of *P. podoliensis* had 'paired thecal elevations', which are absent in the type material of *P. butovicensis*. Finally, the stratigraphic distribution of the *Polonograptus* species in the Kopanina Formation of Bohemia led him to postulate that *P. egregius* is the probable ancestor of *P. podoliensis* and *P. podoliensis australis* an intermediate linkage.

8. Urbanek & Teller (1997, p. 43) concluded that the species *Monograptus butovicensis* is a nomen dubium because its type specimens are best interpreted as distal fragments of *Colonograptus roemeri* (Barrande, 1850), a species common in faunal associations at Butovice, and one of the monograptids characterized by an extensive distal thecal overlap. They suggested that the species *Polonograptus podoliensis* be designated as the type species of *Polonograptus* because it is the first reliably defined and described full representative of the genus.

9. The name *Monograptus butovicensis* is based on type specimens which cannot be recognized because they lack the proximal end. No additional material is known from the type locality of *M. butovicensis* that could be of help in understanding the species, leaving us no alternative but to consider it a nomen dubium. The present diagnosis

of *Polonograptus* is based on a hypothetical and composite type species consisting of the proximal end of *P. podoliensis* and the distal end of *M. butovicensis*. The continued acceptance of *M. butovicensis* as type species of *Polonograptus* threatens the current usage of the genus. It is, therefore, desirable to set aside the nominal species *Monograptus butovicensis* as type species of *Polonograptus* and to designate the nominal species *Polonograptus podoliensis* as the type.

10. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to set aside all previous fixations of type species for the nominal genus *Polonograptus* Tsegelnjuk, 1976 and to designate *Polonograptus podoliensis* Přibyl, 1983, as the type species;
- (2) to place on the Official List of Generic Names in Zoology the name *Polonograptus* Tsegelnjuk, 1976 (gender: masculine), type species by designation in (1) above *Polonograptus podoliensis* Přibyl, 1983;
- (3) to place on the Official List of Specific Names in Zoology the name *podoliensis* Přibyl, 1983, as published in the binomen *Polonograptus podoliensis* (specific name of the type species of *Polonograptus* Tsegelnjuk, 1976);
- (4) to place on the Official Index of Rejected and Invalid Generic Names in Zoology the name *Alexandrograptus* Přibyl, 1981 (unavailable because disclaimed by its author in the original publication).

References

- Bouček, B.** 1936. La faune graptolitique du Ludlowien inférieur de la Bohême. *Bulletin International de l'Académie des Sciences de Bohême*, **46**: 1–17.
- Jaeger, H.** 1975. Die Graptolithenführung im Silur/Devon des Cellon–Profils (Karnischen Alpen). *Carinthia II*, **85**(165): 111–126.
- Přibyl, A.** 1981. New graptolites of the family Monograptidae from the Upper Silurian of Bohemia. *Věstník Ústředního ústavu geologického*, **56**(6): 371–375.
- Přibyl, A.** 1983. Graptolite biozones of the Kopanina and Pídlí Formations in the Upper Silurian of central Bohemia. *Časopis pro mineralogii a geologii*, **28**(2): 49–167.
- Rickards, R.B., Davidson, G.J. & Banks, M.R.** 1993. Silurian (Ludlow) graptolites from Golden Ridge, NE Tasmania. *Memoirs of the Association of the Australasian Palaeontologists*, **15**: 125–135.
- Štorch, P.** 1995. Upper Silurian (Upper Ludlow) graptolites of the *N. inexpectatus* and *N. kozlowskii* biozones from Kosov Quarry near Beroun (Barrandian area, Bohemia). *Věstník Českého geologického ústavu*, **70**(4): 65–89.
- Tsegelnjuk, P.D.** 1976. Pozdnesilurijskie i rannedevonskie monograptidy jugo–zapadnoj Ukrainy vostočno–evropejskoj platformy. Pp. 91–133 in Shulga, P.L. (Ed.), *Paleontologiya i stratigrafiya verchnego Dokembriya i nizhnego Paleozoya jugo–zapada vostočno–evropejskoj platformy*. Naukova Dumka, Kiev.
- Urbanek, A. & Teller, L.** 1997. Graptolites and stratigraphy of the Wenlock and Ludlow Series in the East European Platform. *Palaeontologia Polonica*, **56**: 23–57.

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the Executive Secretary, I.C.Z.N., c/o The Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).

Case 3186***Squalus edwardsii* (currently *Haploblepharus edwardsii*; Chondrichthyes, Carcharhiniformes): proposed attribution to Schinz (1822) and conservation of *edwardsii* as the correct original spelling of the specific name**

M.J.P. van Oijen

*Nationaal Natuurhistorisch Museum, Naturalis, Darwinweg 2,
2333 CR Leiden, The Netherlands (e-mail: oijen@naturalis.nnm.nl)*

Abstract. The purpose of this application is to attribute the specific name of the puffadder shyshark *Haploblepharus edwardsii* to Schinz (1822) as the author and to conserve *edwardsii* as the correct original spelling; Schinz used the spelling *edwardsii*.

Keywords. Nomenclature; taxonomy; Chondrichthyes; SCYLIORHINIDAE; *Haploblepharus*; *Haploblepharus edwardsii*; puffadder shyshark.

1. Edwards (1764, pp. 164–170, pl. 289) described and figured three juvenile sharks from the Cape of Good Hope, South Africa, under the names the Greater Cat–Fish / le Chat de Mer Major, which he believed to be conspecific with the *Catulus major vulgaris* of Willughby (1686) from the North Sea. The figures were reproduced in a translation of this book by Houttuyn (1776, p. 30, pl. 89) as ‘den grooten Zee–hond of Bonte Haay’. According to Edwards ‘the upper two figures are supposed to give the size of the fish, when it is only a few days old; the lower figures are of their bigness at the time of their exclusion from the egg’. These three figured specimens, whose whereabouts are unknown, must be considered syntypes of the species. Compagno (1984, p. 332) was mistaken when in his account of *Haploblepharus edwardsii* he referred to a ‘holotype?’ even if the name is taken from Voigt (1832; see below). Eschmeyer (1998, vol. 1, p. 511) cited as syntypes ‘?RMNH 4161–64 (2,1,1,1)’. However, RMNH 4161–RMNH 4164 are the Leiden registration numbers of the syntypes of *Scillium pictum* Müller & Henle, 1839 (= *Haploblepharus pictus*).

2. Cuvier (1817, p. 124; 1829, p. 386) recognised that the specimens described and figured by Edwards (1764) belonged to a valid species that he referred to as ‘sq. d’Edwards’, but as a vernacular this is not an available name. The name was first made available by Schinz (1822, p. 214) in a translation of Cuvier (1817). In a footnote he stated: ‘*Squal. Edwardsii*. Edw. 289 wahrscheinlich derselbe mit . . .’. Unfortunately Schinz used the spelling ‘*edwardsii*’ instead of ‘*edwardsii*’. All subsequent authors have overlooked this publication. Voigt (1832, p. 504) translated Cuvier’s (1829) edition of the *Règne Animal* and mentioned in a footnote to the sharks ‘mit schwarzen und weitzen Flecken; *Sq. Edwardsii* Edw. 289, unter dem falschen Namen Greater Cat–Fish, welcher die Roussette anzeigen würde, und den man irrig als den sogenannten stellaris citirt.’

3. The name *Scyllium edwardsii* was attributed to Cuvier (1829) by Müller & Henle (1841), Günther (1870), Duméril (1865) and Regan (1908).

4. Garman (1913) placed the species in the genus *Haploblepharus* and recognised Voigt (1832) as author of the species. Bass (1986), Compagno (1984, 1988) and Eschmeyer (1998) have also attributed the species to Voigt (1832).

5. However, the first available name for the species is *Squalus edwardsii* Schinz, 1822. Because authors using the name *Haploblepharus edwardsii* have not attributed the name to Schinz (1822) it cannot be deemed to be a correct original spelling under Article 33.3.1 of the code.

6. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary powers to rule that the name *edwardsii* as published in the binomen *Squalus edwardsii* Schinz, 1822, is an incorrect original spelling of *edwardsii*;
- (2) to place on the Official List of Specific Names in Zoology the name *edwardsii* Schinz, 1822, as published in the binomen *Squalus edwardsii* [sic];
- (3) to place on the Official Index of Rejected and Invalid Specific Names in Zoology the name *edwardsii* Schinz, 1822, as published in the binomen *Squalus edwardsii* and ruled in (1) above to be an incorrect original spelling of *edwardsii*.

Acknowledgements

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References

- Bass, A.J. 1986. In Smith, M.M. & Heemstra, P.C. (Ed.). *Smith's Sea Fishes*. xx, 1047 pp., 144 pls. Springer, Berlin.
- Compagno, L.J.V. 1984. Carcharhiniformes. Sharks of the world. An annotated and illustrated catalogue of shark species known to date. *FAO Fisheries Synopsis*, (125)4(2): 251–655.
- Compagno, L.J.V. 1988. *Sharks of the order Carcharhiniformes*. xx, 486 pp. Princeton University Press, New Jersey.
- Cuvier, G. 1817. *Le Règne Animal distribué d'après son organisation . . .*, vol. 2. *Les reptiles, les poissons, les mollusques et les annélides*. 532 pp. Belin, Paris.
- Cuvier, G. 1829. *Le Règne Animal distribué d'après son organisation . . .*, vol. 2. *Les reptiles, les poissons, les mollusques et les annélides*. xv, 406 pp. Tilliard, Paris.
- Duméril, A. 1865. *Histoire naturelle des poissons ou ichthyologie générale. Elasmobranches, Plagiostomes et Holocephales ou chimères*, vol. 1. 720 pp. Paris.
- Edwards, G. 1764. *Gleanings of natural history, exhibiting figures of quadrupeds, birds, insects, plants, etc. . . . Fishes*, vol. 2. Pp. 153–160, pls. 282–284. London.
- Eschmeyer, W.N. (Ed.). 1998. *Catalogue of Fishes*, vol. 1. 958 pp. California Academy of Sciences, San Francisco.
- Garman, S. 1913. The Plagiostomia (Sharks, Skates and Rays). *Memoirs of the Museum of Comparative Zoology at Harvard College*, vol. 36. 515 pp.
- Günther, A. 1870. Physostomi, Lophobranchii, Plectognathi, Dipnoi, Ganoidei, Chondropterygii, Cyclostomata, Leptocardii. *Catalogue of the Fishes in the British Museum*, vol. 8. xxv, 549 pp. British Museum, London.
- Houttuyn, M. 1776. *Verzameling van Uitheemse en Zeldzame Vogelen, benevens enige vreemde Dieren en Plantgewassen: in 't Engelsch naauwkeurig beschreven en naar 't leven met kleuren afgebeeld door G. Edwards en M. Catesby vervolgens ten opzigt van de Plaatzen merkelyk verbeterd, in 't Hoogduits uitgegeven door J. M. Seligmann. Thans in 't Nederduitsch vertaald*

- en met aanhaalingen van andere auteuren verrykt door M. Houttuyn, Medic. Doctor*, vol. 8. Pp. 1–56, pls. 51–100. Sepp, Amsterdam.
- Müller, J. & Henle, J.** 1838–1841. *Systematische Beschreibung der Plagiostomen*. xxii, 200 pp. Veit, Berlin.
- Regan, C.T.** 1908. A revision of the sharks of the Family Scyliorhinidae. *Annals and Magazine of Natural History*, (8)1(6): 453–465.
- Schinz, H.R.** 1822. *Das Thierreich eingeteilt nach dem Bau der Thiere als Grundlage ihrer Naturgeschichte und die vergleichende Anatomie*, vol. 2. xvi, 835 pp. Cotta, Stuttgart & Tübingen.
- Voigt, F.S.** 1832. *Das Thierreich geordnet nach seiner Organisation . . . Vom Baron von Cuvier*, vol. 2. xvi, 539 pp. Leipzig.
- Willughby, F.** 1686. [*F. Willoughby Ichthyographia*] *F. Willughbeii . . . de Historia Piscium libri quatuor / Totum opus recognovit . . . librum etiam primum & secundum integros adjecit J. Raius; Appendix. Pisces Indiae Orientalis a J. Nieuhoofs descripti*. v, 343, 30, [13] pp. Oxonii.
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Case 2661

MACROPODINAE Liem, 1963 (Osteichthyes, Perciformes): proposed emendation of spelling to MACROPODUSINAE, so removing the homonymy with MACROPODIDAE Gray, 1821 (Mammalia, Marsupialia)

Maurice Kottelat

Route de la Baroche 12, Case postale 57, 2952 Cornol, Switzerland (address for correspondence); *Department of Biological Sciences, National University of Singapore, Kent Ridge, Singapore 119260* (e-mail: mkottelat@dplanet.ch)

Abstract. The family-group name MACROPODINAE Liem, 1963 (Osteichthyes, Perciformes, family OSPHRONEMIDAE, BELONTIIDAE or ANABANTIDAE) is a junior homonym of MACROPODIDAE Gray, 1821 (Mammalia, Marsupialia). Both names are in use and refer, respectively, to a group of anabantoid fishes (labyrinth fishes) from South, Southeast and East Asia and to the kangaroos and wallabies of Australia (including Tasmania) and New Guinea. The senior homonym is much older and has been considerably more widely used than the junior and it is proposed that the homonymy be removed by changing the spelling of the fish family-group name to MACROPODUSINAE by using the whole name of the type genus *Macropodus* La Cèpède, 1801 as the grammatical stem, while leaving the mammalian name (based on *Macropus* Shaw & Nodder, 1790) unchanged. The names of *Macropus* and of its type species, *M. giganteus* Shaw & Nodder, 1790, were placed on Official Lists in Opinion 760 (January 1966).

Keywords. Nomenclature; taxonomy; Mammalia; Marsupialia; Osteichthyes; Perciformes; MACROPODIDAE; OSPHRONEMIDAE; BELONTIIDAE; ANABANTIDAE; MACROPODUSINAE; *Macropus*; *Macropodus*; kangaroos; wallabies; anabantoid fishes; labyrinth fishes; Australia; Tasmania; New Guinea; Southeast Asia.

1. In 1790 Shaw & Nodder (text and pl. 33) described and illustrated the new genus and species *Macropus giganteus*, the grey kangaroo from Eastern Australia and Tasmania. The names of *Macropus* and of *M. giganteus* were placed on Official Lists in Opinion 760 (January 1966), the species being defined by the male neotype (catalogue number J.10749 in the Queensland Museum, Brisbane) proposed in 1964 by Kirkpatrick & Woods (BZN 21: 249–250) and by Calaby & Ride (BZN 21: 254).

2. Gray (1821, p. 308) established the family-group MACROPIDAE based on *Macropus*, which was subsequently corrected by Owen (1839, pp. 16, 19) to MACROPODIDAE. The latter name has subsequently been universally used for the kangaroos, wallabies and wallaroos of Australia (including Tasmania) and New Guinea. The family currently includes some 10 genera and 50 species, and a number of fossil taxa are known from the Miocene, Pliocene and Pleistocene.

3. La Cèpède (1801, p. 416, pl. 16, fig. 1) established the name *Macropodus* for the paradise fish, with *M. viridauratus* La Cèpède, 1801 (p. 416) as the single included species. Species of *Macropodus* are now known from much of East Asia (from

Vietnam to Japan and Korea), have been accidentally introduced to Laos and Cambodia and probably a few other countries, and are commonly reared for the aquarium trade. Species from India referred to *Macropodus* (even in the recent literature) are, in fact, *Pseudosphromenus*.

4. Liem (1963, p. 47) established the family-group name MACROPODINAE for one of three groups in the family BELONTIIDAE Liem, 1963, setting out (p. 73) the morphological characteristics of each group. Liem's (1963) subfamily included the genera *Macropodus*, *Parosphromenus* Bleeker, 1877, *Trichopsis* Canestrini, 1860, *Malpulutta* Deraniyagala, 1937 and *Betta* Bleeker, 1850. Subsequently, Vierke (1975) added *Pseudosphromenus* Bleeker, 1879 and these six genera are the currently accepted constituents of the subfamily (see Britz, 2001). Members of the subfamily are found in South, Southeast and East Asia, from Sri Lanka to Japan and Korea, and to Indonesia.

5. The relationships within anabantoid fishes have not been the subject of many studies since Liem (1963) (although there have been a considerable number of publications on species taxonomy, ecology and ethology). The name MACROPODINAE has been seldom used. However, recent work on the group (see Britz, 2001; Britz & Cambray, 2001, and Freyhof & Herder, 2002) has resulted in the name being brought back into use. It has been used by these authors for a subfamily of the OSPHRONEMIDAE but in the future may well be required at family level. Britz (2001, p. 261) recorded that the name MACROPODINAE Liem, 1963 was a junior homonym of the marsupial family-group name MACROPODIDAE Gray, 1821, and that an application to deal with the homonymy had been submitted to the Commission. To remove the homonymy I propose that the fish name be emended to MACROPODUSINAE, by using the full generic name *Macropodus* as the stem, while leaving the well known and much used marsupial family name unaltered.

6. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to rule that for the purposes of Article 29 of the Code the stem of the generic name *Macropodus* La Cèpède, 1801 (Osteichthyes) is MACROPODUS-;
- (2) to place on the Official List of Generic Names in Zoology the name *Macropodus* La Cèpède, 1801 (gender: masculine), type species by monotypy *Macropodus viridiauratus* La Cèpède, 1801 (Osteichthyes);
- (3) to place on the Official List of Specific Names in Zoology the name *viridiauratus* La Cèpède, 1801, as published in the binomen *Macropodus viridiauratus* (specific name of the type species of *Macropodus* La Cèpède, 1801) (Osteichthyes);
- (4) to place the following names on the Official List of Family-Group Names in Zoology:
 - (a) MACROPODIDAE Gray, 1821, type genus *Macropus* Shaw & Nodder, 1790 (Marsupialia);
 - (b) MACROPODUSINAE Liem, 1963, type genus *Macropodus* La Cèpède, 1801 (spelling emended by the ruling in (1) above) (Osteichthyes);
- (5) to place on the Official Index of Rejected and Invalid Family-Group Names in Zoology the name MACROPODINAE Liem, 1963 (spelling emended to MACROPODUSINAE by the ruling in (1) above) (Osteichthyes).

References

- Britz, R.** 2001. The genus *Betta* – monophyly and intrarelationships, with remarks on the subfamilies Macropodinae and Luciocephalinae (Teleostei: Osphronemidae). *Ichthyological Exploration of Freshwaters*, **12**: 305–318.
- Britz, R. & Cambray, J.** 2001. Structure of egg surfaces and attachment organ in anabantoids. *Ichthyological Exploration of Freshwaters*, **12**: 267–288.
- Freyhof, J. & Herder, F.** 2002. Review of the paradise fishes of the genus *Macropodus* with the description of two new species (Perciformes: Osphronemidae). *Ichthyological Exploration of Freshwaters*, **13**.
- Gray, J.E.** 1821. On the natural arrangement of vertebrate animals. *London Medical Repository*, **15**: 296–310.
- La Cépède, B.** 1801. *Histoire naturelle des poissons*, vol. 3. 558 pp., 34 pls. Plassan, Paris.
- Liem, K.F.** 1963. The comparative osteology and phylogeny of the Anabantoidei (Teleostei, Pisces). *Illinois Biological Monographs*, **30**: 1–149.
- Owen, R.** 1839. Outlines of a classification of the Marsupialia. *Proceedings of the Zoological Society of London*, **1839**(7): 5–19.
- Shaw, G & Nodder, F.P.** 1790. Pls. 16–37 in: *The naturalist's miscellany, or colored figures of natural objects: drawn and described . . . from nature*, vol. 1. London. (see Sherborn, C.D., 1895, *Annals and Magazine of Natural History*, (6)**15**: 375 for the dates of publication of the parts of this work).
- Vierke, J.** 1975. Beiträge zur Ethologie und Phylogenie der Familie Belontiidae (Anabantoidei, Pisces). *Zeitschrift für Tierpsychologie*, **38**: 163–199.

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Comments on the proposed revocation of Article 74.7.3 of the Code (requirement for an express statement of the taxonomic purpose of a lectotype designation)

(See BZN 58: 133–140)

(1) Alexandr P. Rasnitsyn

Paleontological Institute, Russian Academy of Sciences, Profsoyuznaya Str. 123, 117868 Moscow, Russia

The comments on Article 74.7.3 of the Code published in BZN 58: 133–140 present the opinions of 23 persons who propose or support the revocation of the Article and of only seven who favour its retention.

One of the latter is Dr P.K. Tubbs, the Executive Secretary of the Commission (although he does make clear that the views he has expressed are personal ones). I find the argument in his penultimate paragraph especially surprising: ‘The belief that lectotypes should be designated as a matter of ‘routine’ revisory work is surely mistaken. Many well known species do not have any existing type material, and yet their names are of undoubted application; in other instances the taxon is better delineated by the original author’s type series than by a subsequent author’s arbitrary, if well meaning, restriction to a single specimen . . .’.

While literally correct when taken in isolation, in the context of the present discussion this statement implies that typification has only *ad hoc* function: the type is necessary only when the application of the name presents an explicit problem, and it is otherwise redundant. A modest extension of this claim uncovers the logic behind it, and would be: ‘The belief that types should be designated as a matter of routine work is surely mistaken’. To be consistent with this view and with Article 74.7.3 other Articles (those dealing with the designation of holotypes, type species and type genera) would have to be modified, to include demands that an author of *any* name must make an ‘express statement of taxonomic purpose’. However, nobody has proposed such modifications.

(2) P.K. Tubbs

c/o The Natural History Museum, Cromwell Road, London SW7 5BD, London, U.K.

I continue to hold the view which I mentioned previously about ‘routine’ lectotype designations which have no expressed statement of taxonomic purpose, but I certainly do not subscribe to the ‘modest extension’ of logic which Prof Rasnitsyn describes and which would hold that typification of taxa is usually redundant. Nor do I believe that all type designations, including those by the original authors of names, should be invalid unless accompanied by statements of purpose.

In practice most authors rightly explain the taxonomic purpose of establishing a new genus and why they are selecting a particular type species for it; the same applies to family-group taxa (in which the type genus determines the name itself). Typification has been mandatory for genus-group taxa since 1930, but the current Code is the first to require (Article 16.4) the explicit fixation of name-bearing types for new species. Typification of species has always been different from that of genera or families because the name-bearing type consists of one *or more* specimens, and is not a necessarily single named entity (a nominal species or genus). Because the author may consider that the new species is best illustrated by a series of specimens (e.g.

more than one sex or life stage) a holotype is not mandatory even now: syntypes suffice, or may be better. If the author has based the species on a series of specimens rather than a holotype, whether or not for a stated reason, then an arbitrary 'routine' restriction to a lectotype is a modification of the original work which may serve no purpose other than satisfying the entirely philosophical, and surely mistaken, belief that a name-bearing type must invariably be a single entity. If the syntypes are believed to be conspecific no taxonomic purpose is served by a lectotype; if they are not, or if there is doubt, then a lectotype is indeed necessary but it is not difficult to state this and so comply with Article 74.7.3. Later workers deserve to know why the type series has been restricted. Many routine designations of lectotypes have had the very unfortunate effect of changing the application of the names concerned, and this should become less common now that authors are obliged to state their reason for designating a particular lectotype.

Comments on the proposed conservation of *Hydrobia* Hartmann, 1821 (Mollusca, Gastropoda) and *Cyclostoma acutum* Draparnaud, 1805 (currently *Hydrobia acuta*) by the replacement of the lectotype of *H. acuta* with a neotype; proposed designation of *Turbo ventrosus* Montagu, 1803 as the type species of *Ventrosia* Radoman, 1977; and proposed emendation of HYDROBIINA Mulsant, 1844 (Insecta, Coleoptera) to HYDROBIUSINA, so removing the homonymy with HYDROBIIDAE Troschel, 1857 (Mollusca)

(Case 3087; see BZN 55: 139–145; 56: 56–63, 143–148, 187–190, 268–270; 58: 56–58, 140–141)

(1) Thomas Wilke and George M. Davis

Department of Microbiology & Tropical Medicine, George Washington University, Ross Hall, 2300 Eye Street NW, Washington, DC 20037, U.S.A.

Gittenberger (BZN 58: 140) states that there are clear affirmative answers to his three questions on the status of the lectotype for *Hydrobia acuta* (Draparnaud, 1805). We argue to the contrary. We conclude the following for Boeters's (1984) lectotype designation:

(a) The lectotype is taxonomically inadequate as it cannot be identified with certainty and it is most probably (see Wilke, Davis & Rosenberg, BZN 56: 187–190) a specimen of *Ventrosia ventrosa* (Montagu, 1803), and (b) stability and universality are threatened because Boeters's lectotype is not in accord with the prevailing usage of the name.

(a) Taxonomic inadequacy of the lectotype

The geographic origin of Draparnaud's (1805) syntypes is unknown. Neither the original description nor any data accompanying the original material, collector's notes, itineraries or personal communications indicate where the material came from. *Hydrobia acuta* is known from the western Mediterranean (as *H. a. acuta*) and from the northeastern Atlantic (as *H. a. neglecta*) (see Wilke et al., 2000) and the notion that Draparnaud's material came from the Étang du Prévost (to which *H. acuta* was restricted by Radoman, 1977) near Montpellier, where Draparnaud lived, is not justified.

The origin of Draparnaud's material is important because locality data are crucial for the determination of hydrobiid taxa. As we stressed in our previous comment

(BZN 56: 187–190), the identification of species of *Hydrobia* and related groups based on shell characters alone is very difficult and highly speculative as, although genetically controlled, the characters are strongly modulated by environmental factors like substratum, salinity, competition and parasitism (the last affects shell size and the roundness of the whorls). There are tendencies in shell differences (for example, the whorls in *H. acuta* are often flatter than in *V. ventrosa*) and these characters are sometimes used for a preliminary determination. Where we assumed that the two taxa *H. acuta* and *V. ventrosa* were present in a population, identification based on shell characters could be confirmed with detailed anatomical and molecular methods in an average of about 80% of cases (BZN 56: 187–190). Although this indicates that shell characters are not randomly distributed, the average success of determination is far from being adequate for purposes of typification.

Boeters's approach of correlating the shell morphology of Draparnaud's (1805) preserved material with the morphology and anatomy of living material from the (supposed) same place is correct in principle (though a statistically sound analysis would have been more appropriate than an empirical estimate of whorl roundness). However, this approach works only if specimens are compared from the same site, if the environmental conditions at that locality have not changed significantly between collections, if no parasitism occurs, and if the species composition is still the same. None of these factors can be assumed in Boeters's (1984) study that led to his designation of a lectotype for *H. acuta*. In fact, the species combination *H. acuta* and *V. ventrosa* found in the Étang du Prévost is not typical. In the western Mediterranean at least six taxa have similar shell shapes: *Hydrobia acuta*, *Hydrobia* spp. A and B (see Wilke et al., 2000), *Ventrosia ventrosa*, *V. pontieuxini* and *Semisalsa* cf. *stagnorum*. These taxa occur in various combinations with up to three taxa sympatric in some of the 23 sites we studied. The combination *H. acuta/V. ventrosa* was found at only four sites. We also studied two populations from the Étang du Prévost, one received in 1997 and the other in 1999; based on the male reproductive system and molecular studies, the former population contained only *H. acuta* whereas the latter contained *H. acuta* and *V. ventrosa*. As Draparnaud's material is almost 200 years old and not well preserved (for example, aperture eroded, color faded, soft body missing or degraded), further anatomical or molecular studies are most improbable.

The suggestion by Wilke et al. (BZN 56: 187–190) that Boeters's concept of '*Hydrobia acuta*', based on anatomical criteria, is actually *Ventrosia ventrosa* has been verified (see Wilke & Davis, 2000).

(b) Prevailing usage of the name

Over the past five years we have received more than 80 populations of various species of *Hydrobia* from malacologists and field biologists from 12 European countries. In about 30% of the samples, one or more taxa were misidentified. However, when these workers identified *H. acuta*, it never had an awl-like penis (*sensu* Boeters) except for one population we received from Greece. This shows that the overwhelming majority of biologists do not apply the *Hydrobia*-concept of Boeters (1984), but the concept used by Giusti et al. (BZN 55: 139–145).

Boeters's (1984) lectotype designation for *Hydrobia acuta* is taxonomically misidentified and not in accord with the prevailing usage of the name and we strongly support the proposed neotype designation, for which the specimen is from a known locality, by Giusti et al. (BZN 55: 139–145).

Additional references

- Wilke, T. & Davis, G.M. 2000. Intraspecific mitochondrial sequence diversity in *Hydrobia ulvae* and *Hydrobia ventrosa* (Hydrobiidae: Rissooidea: Gastropoda): Do their different life histories affect biogeographic patterns and gene flow? *Biological Journal of the Linnean Society*, **70**(1): 89–105.
- Wilke, T., Rolán, E. & Davis, G. M. 2000. The mudsnail genus *Hydrobia* s.s. in the northern Atlantic and western Mediterranean: a phylogenetic hypothesis. *Marine Biology*, **137**: 827–833.

(2) Folco Giusti, Giuseppe Manganelli and Marco Bodon

*Dipartimento di Biologia Evolutiva, Università di Siena, Via Mattioli 4,
I-53100 Siena, Italy*

The Glossary entry in the Code for a neotype states: ‘The single specimen designated as the name-bearing type of a nominal species or subspecies when there is a need to define the nominal taxon objectively . . . If stability and universality are threatened, because an existing name-bearing type is either taxonomically inadequate or not in accord with the prevailing use of a name, the Commission may use its plenary power to set aside that type and designate a neotype’.

Our application entirely conforms with this definition, namely to set aside the lectotype designation by Boeters (1984) for *Hydrobia acuta* (Draparnaud, 1805) and to designate a neotype in agreement with the understanding of the species since Mars (1966) and Radoman (1977) and followed by virtually all subsequent authors. Recognition of Boeters’s lectotype would alter the concept of *H. acuta* (see our previous comment on BZN **56**: 145–147) with serious consequences for the stability of the names of a number of species and genera: the specific name of *Ventrosia ventrosa* (Montagu, 1803) would replace *H. acuta* and a new name would be required for *H. acuta* as usually understood, the name *Hydrobia* Hartmann, 1821 would be transferred to the genus currently called *Ventrosia* Radoman, 1977, and the group generally known as *Hydrobia* would require a new name. That these changes would be unacceptable to the majority of hydrobiid workers has been demonstrated by the number of supportive comments on this case.

It seems to us that in his new comment, published in BZN **58**: 140–141, Gittenberger has not offered any additional information or new insights into the problem of the typification of *Hydrobia acuta*. He states ‘I am in favour of accepting the existing lectotype’ but gives nothing new to explain his choice. His view that ‘a neotype (suggesting that all the syntypes cannot be identified) would not bring the current confusion to an end. Only good taxonomic research will do this’ is illogical and is not supported by most of those who have commented on our application and who consider that the current confusion will end only when, following designation of a neotype, taxonomy and nomenclature are brought into accord. Further, Gittenberger makes the point that our case ‘relates to systematics, not nomenclature’, but it is evident to us that the two are linked and that frequently nomenclatural problems are solved with the resolution of taxonomic/systematic problems.

Gittenberger’s statement shows that he has ignored all that has been written on this case by Giusti et al. (BZN **56**: 144–148), by Wilke et al. (BZN **56**: 187–190), and by several other supportive authors. We commend these comments to him:

Comment on a proposed emendation of the family-group name VACHONIANINAE Maury, 1973 (Arachnida, Scorpiones) to avoid homonymy: this is the correct original spelling and the case is resolved by application of the Code
(Case 3119; see BZN 57: 24–25, 167–168)

P.K. Tubbs

Executive Secretary, International Commission on Zoological Nomenclature

In their application Drs Fet and Braunwalder noted that the family-group names VACHONIIDAE Chamberlin, 1947 (pseudoscorpions) and VACHONIANINAE Maury, 1973 (scorpions) would be homonyms if the latter name were spelled VACHONIINAE, as would be normal practice because the grammatical stem of the name of the type genus *Vachonia* is Vachoni- and not Vachonian-. To avoid the homonymy they proposed that the scorpion name should be spelled VACHONIAINAE, taking the entire generic name as the stem.

However, Article 29.3.3 of the current Code permits a new family-group name to be formed from 'the entire generic name with one or more appropriate linking letters incorporated to form a more euphonious name'. Under this provision (which was not in previous editions of the Code) VACHONIANINAE is a correct original spelling; although not in accord with the then-current Code it was introduced by Maury (1973) to avoid homonymy with VACHONIIDAE Chamberlin.

The spelling VACHONIANINAE is not only correct but is that which has been used by subsequent authors, and Drs Fet and Braunwalder have agreed to withdraw their proposal and close the case.

Comments on the proposed conservation of *Cryphops* Richter & Richter, 1926 (Trilobita)

(Case 3171; see BZN 58: 97–99)

An application by Dr D.J. Holloway and Prof K.S.W. Campbell to conserve the name *Cryphops* Richter & Richter, 1926 for a genus of late Devonian trilobites (family PHACOPIIDAE) was published in the *Bulletin* in June 2001. It was also placed on the website run by Dr S.M. Gon III (<http://www.aloha.net/~smgon/ICZN3171.htm>). Four supportive comments have also been placed on the website.

It is planned to send the application to the Commission for voting on 1 March 2002. Any person wishing to comment is asked to send their comment direct to Dr Gon by e-mail (smgon@aloha.net) as soon as possible, and by 15 February 2002 at the latest.

Comment on the proposed designation of *Cuma rathkii* Krøyer, 1841 as the type species of *Diastylis* Say, 1818, and designation of a lectotype (Crustacea, Cumacea)

(Case 3078; see BZN 56: 174–176; 57: 45–46)

Sarah Gerken

James Madison University, Biology Department, MSC 7801, Harrisonburg, Virginia 22807, U.S.A.

In his description of *Cuma rathkii*, Krøyer (1841) observed that he had specimens from both South Greenland and the Kattegat but did not indicate a holotype. In my application (para. 5) I recorded that there was syntype material in the Zoological Museum of the University of Copenhagen, catalog no. CRU-7936. In endorsing my

proposals, Prof L.B. Holthuis noted (BZN 57: 45-46) that it would be advisable to select a lectotype for *C. rathkii*.

I have recently received on loan the *Diastylis rathkii* material from ZMUC. It is a single specimen, an ovigerous female from the Kattegat with the accession no. ZMUC-CRU-7936. The loan paperwork states the specimen to be the 'holotype' and it is apparently the only one now remaining of the original type series.

Băcescu (1992) referred to the two type localities for *D. rathkii* and wrote of the Copenhagen material as 'syntypes', but had not seen or examined the type material (L.B. Holthuis, in litt., September 2001). It is not possible to ascertain at what point during the 160 intervening years the rest of Krøyer's (1841) material was lost.

I confirm that the Copenhagen syntype is a specimen of *Diastylis rathkii* as currently understood. Since it is possible that the original material, from two widely separated localities, may have belonged to more than one taxon, to secure the identity of the nominal species *D. rathkii* I now designate specimen ZMUC-CRU-7936 as the lectotype.

Comment on the proposed conservation of the specific name of *Hydroporus discretus* Fairmaire & Brisout in Fairmaire, 1859 (Insecta, Coleoptera)

(Case 3147; see BZN 58: 105-107)

Philippe Bouchet

Muséum National d'Histoire Naturelle, 55 Rue de Buffon, F-75005 Paris, France

The application seeks to conserve the name *Hydroporus discretus* Fairmaire & Brisout, 1859 by suppressing the name *H. neuter* Fairmaire & Laboulbène, 1854. The senior synonym has been used as valid once after 1899, which excludes the case from the reversal of precedence covered by Article 23.9 of the Code. The application (para. 8) gives four references to works published in the last 50 years that have used the name *discretus* and states that a further 16 references have been given to the Commission Secretariat. My examination of this list of additional references shows that only three have been published in the last 50 years. In my view the applicant has not demonstrated that a name so infrequently used as *Hydroporus discretus* Fairmaire & Brisout, 1859 needs conservation, and priority should apply.

Comment on the proposed precedence of NYMPHULINAE Duponchel, 1845 over ACENTROPINAE Stephens, 1835 (Insecta, Lepidoptera)

(Case 3048; see BZN 56: 31-33; 57: 46-48)

David Agassiz

Department of Entomology, The Natural History Museum, Cromwell Road, London SW7 5BD, U.K.

I very much support Dr Solis's application for the conservation of the family-group name NYMPHULINAE Duponchel, 1845 by giving it precedence over ACENTROPINAE Stephens, 1835.

I believe Speidel (1981, 1984) was correct in synonymising the subfamilies NYMPHULINAE and ACENTROPINAE, and ACENTROPINAE is the older name. However, my understanding, even before the greater emphasis given to usage in the latest (4th) edition of the Code, is that it is important to preserve a name that is in general use.

Before synonymy with the NYMPHULINAE, the subfamily ACENTROPINAE included only the single genus *Acentria* Stephens, 1829 (the senior synonym of *Acentropus* Curtis, 1834). *Acentria* includes only one species, *A. ephemerella* (Denis & Schiffermüller, 1775) (p. 142), which is European and thought to have been introduced into North America. This distinctive species has hitherto been a problem to systematists: Spuler (1910) and Kloet & Hincks (1972) placed it in the subfamily SCHOENOBIINAE, whilst Meyrick (1928) placed it in the PYRAUSTINAE. In their revisions of the NYMPHULINAE in America, Lange (1956) and Munroe (1972) did not include *Acentria*. Only in recent years has its inclusion in the subfamily NYMPHULINAE been generally accepted.

In the Americas, Asia and Australasia, NYMPHULINAE is the only subfamily name to have been used, and in Europe it is really only Speidel and his colleague Mey who have used ACENTROPINAE (see their comment in BZN 57: 46–48). In the checklists of Australia (Nielsen et al., 1996) and the Neotropical Region (Heppner, 1992), and in works on the family in Japan and Thailand (Yoshiyasu, 1985, 1987), there is no mention of *Acentria* (let alone of the invalid and long disused *Acentropus*). Acceptance of ACENTROPINAE as the valid name would mean a change of subfamily name for all the included species, of which there are about 500 worldwide and several of economic importance, and would be a cause of considerable disruption. I strongly support the application.

Additional references

- Denis, J.N.C.M. & Schiffermüller, I. 1775. *Ankündigung eines systematischen Werkes von den Schmetterlingen der Wienergegend*. Vienna.
- Kloet, G.S. & Hincks, W.D. 1972. *A check list of British insects*. viii, 153 pp. London.
- Lange, W.H. 1956. A generic revision of the aquatic moths of North America (Lepidoptera: Pyralidae, Nymphulinae). *Wasmann Journal of Biology*, 14: 59–144.
- Meyrick, E. 1928. *Revised handbook of British Lepidoptera*. vi, 914 pp. London.
- Munroe, E.G. 1972. Pyraloides: Pyralidae (part). *The moths of America north of Mexico*, vol. 13, part 1A. 134 pp. Classey, London.
- Nielsen, E.S., Edwards, E.D. & Rangsi, T.V. (Eds.). 1996. Monographs on Australian Lepidoptera, 4. *Checklist of the Lepidoptera of Australia*. xiv, 529 pp. Collingwood.
- Spuler, A. 1910. *Die Schmetterlinge Europas*, vol. 2. xvii, 523 pp. Stuttgart.
- Yoshiyasu, Y. 1985. A systematic study of the Nymphulinae and the Musotiminae of Japan (Lepidoptera: Pyralidae). *Scientific Reports of the Kyoto Prefectural University (Agriculture)*, 37: 1–162.
- Yoshiyasu, Y. 1987. The Nymphulinae (Lepidoptera: Pyralidae) from Thailand, with descriptions of a new genus and six new species. *Microlepidoptera of Thailand*, 1: 133–184.

Comment on the proposed conservation of *Cynodon* Spix in Spix & Agassiz, 1829 and *Raphiodon* Agassiz in Spix & Agassiz, 1829, and proposed designation of *C. gibbus* and *R. vulpinus* Spix & Agassiz, 1829 as the respective type species of *Cynodon* and *Raphiodon* (Osteichthyes, Characiformes)
(Case 3041; see BZN 57: 151–157)

Maurice Kottelat

Route de la Baroche 12, Case postale 57, CH-2952 Cornol, Switzerland

I have read Toledo–Piza & Lazara's application concerning the conservation of the generic names *Cynodon* and *Raphiodon*, and the designation of type species for these genera, and I support their conclusions and proposals.

Comments on the proposed precedence of the specific name of *Euphryne obesus* Baird, 1858 over that of *Sauromalus ater* Duméril, 1856 (Reptilia, Squamata)

(Case 3143; see BZN 58: 37–40, 229)

(1) Lauren E. Brown

Department of Biological Sciences, Illinois State University, Campus Box 4120, Normal, Illinois 61790–4120, U.S.A.

I unconditionally support the application of Montanucci et al. to give precedence to the commonly used specific name of the iguanid lizard *Sauromalus obesus* (Baird, 1858) over the seldom-used name *S. ater* Duméril, 1856. The preponderance of use of the name *S. obesus* in the scientific and popular literature (ca. 550 titles for *S. obesus*, versus 46 titles for *S. ater* of which only 12 are post-1950) gives overwhelming and convincing justification for conservation of *S. obesus*. Failure to do so would result in widespread instability and confusion.

I would like to comment further on another use of the name *S. obesus* not covered by the applicants, namely its use in teaching. The species is widely known for its unusual escape behavior. When disturbed or frightened, an individual retreats into the nearest crevice and wedges itself in place by gulping air and inflating its body. Thus, the animal becomes quite difficult to extract. It shares this remarkable behavioral trait with the pancake tortoise *Malacochersus tornieri* (which has a flexible shell) of East Africa. I have described this unusual behavior (always using the name *S. obesus*) in my courses for 34 years. Thus, thousands of students have learned the name. I suspect that students elsewhere have likewise frequently used the name *S. obesus* in conjunction with its unusual escape behavior.

(2) Bayard H. Brattstrom

Department of Biology, California State University, Fullerton, California 92834, U.S.A. (Current address: Horned Lizard Ranch, P.O. Box 166, Wikieup, Arizona 85360–0166, U.S.A.)

I support the arguments of Montanucci et al. to conserve the long used and well known specific name of *Sauromalus obesus* (Baird, 1858) for the famous chuckwalla of the deserts of the United States and Mexico.

I have used the name *Sauromalus obesus* in over a dozen papers on thermoregulation, paleontology, archaeology, social behavior, conservation and indeed folklore. This name is associated with the chuckwalla in many different fields. In addition, the name has been used in such popular magazines as *Arizona Highways* and *National Geographic*. Many books and leaflets sold in national parks, museums and zoos in the southwestern United States have photographs or stories about the chuckwalla and use the name *S. obesus*.

Since the name is so well established in the scientific and lay literature it is my view that *Sauromalus obesus* should be conserved by giving it precedence over *S. ater* Duméril, 1856.

(3) Jay M. Savage

Department of Biology, San Diego State University, San Diego, California 92182–4614, U.S.A.

I write to oppose the proposal of Montanucci et al. to give precedence to the name *Euphryne obesus* Baird, 1858 over its senior synonym *Sauromalus ater* Duméril, 1856. Most biologists, including systematists, dislike the substitution of a familiar name by a senior synonym. Article 23.9 of the Code gives relief when the senior synonym has not been used as a valid name after 1899.

In the present case the species in question was universally called *Sauromalus ater* from Duméril's original 1856 description until 1922. At that time Van Denburgh (1922) decided that two species were involved, and *S. obesus* and *S. ater* were universally regarded as distinct species for a period of 76 years. No one questioned the validity of the two species until Hollingsworth (1998) demonstrated that the two forms were conspecific and properly applied the name of the senior synonym *S. ater* to the single taxon.

During the past 76 years the name of the junior synonym, *S. obesus*, has appeared many more times in the literature than the senior synonym simply because the northern populations (called *S. obesus*) occur in the United States while the southern populations (called *S. ater*) were thought to be a Mexican species. This imbalance in citations reflects the difference in the number of active herpetologists in the two countries, and in turn seriously biases any survey of the literature, such as the one carried out by the authors of this application (para. 6). I question whether the precedence of names should be based on such a factor.

(4) Hobart M. Smith

*Department of Environmental, Population and Organismic Biology,
University of Colorado, Boulder, Colorado 80309-0334, U.S.A.*

Richard R. Montanucci

*Department of Biological Sciences, Clemson University, Clemson,
South Carolina 29634-1903, U.S.A.*

In the present case, for over 75 years the specific names of *Sauromalus ater* Duméril, 1856 and *S. obesus* (Baird, 1858) were consistently applied to what were thought to be different species, and during that time hundreds of usages of *S. obesus* appeared in the literature (and continue to do so), whereas there were few usages of *S. ater*.

Hollingsworth (1998) demonstrated that in reality the two populations are conspecific. Application of priority would require utilization of the name *S. ater* for the single species. However, inasmuch as retention of the far more widely used *S. obesus* would not in any way conflict with Hollingsworth's findings, the Code's primary objectives of stability and universality would be served by retention of the name *S. obesus* for the species.

If taxonomists were the only ones using these names, stability might be of less concern. But this species is cited in innumerable non-taxonomic works and for the sake of these many users stability is important.

We therefore reiterate our support for the application as it stands.

Comment on the proposed designation of neotypes for *Vespertilio pipistrellus* Schreber, 1774 and *V. pygmaeus* Leach, 1825 (currently *Pipistrellus pipistrellus* and *P. pygmaeus*; Mammalia, Chiroptera)

(Case 3073; see BZN **56**: 182–186; **57**: 49–50, 113–116; **58**: 60–61, 230–231)

Gareth Jones

*School of Biological Sciences, University of Bristol, Woodland Road,
Bristol BS8 1UG, U.K.*

In response to the comment by Victor Van Cakenberghe (published in BZN **58**: 230–231) I make the following observations:

1. There is still no unambiguous morphological criterion by which bats from the 45 kHz and 55 kHz phonic types can be distinguished. The phalanx ratios described by Cabrera (1904) are not statistically different. Hence the lectotype and many of the 'other specimens' of *Pipistrellus p. mediterraneus* referred to by Van Cakenberghe are of doubtful identity, and this can only be resolved at present by the use of molecular markers. Although I accept that the lectotype of *P. p. mediterraneus* is likely to be a 55 kHz bat, at present its identity has not been confirmed and the use of this name may not, in any case, provide for a stable nomenclature over time. I am also concerned about the validity of many of the other specimens identified as *P. p. mediterraneus* in collections throughout the world.

2. The case of *Scotophilus* highlighted by Van Cakenberghe is a good example of the confusion caused through instability created by changes in nomenclature. Statements such as 'Thus prior to 1978 *S. nigrita* referred to the largest African form and subsequent references (probably) refer to the middle-sized form' show how confusion can be created, and, in that case, the confusion continues today.

3. Recent uses of the name *P. pygmaeus* include Wong, J.G. & Waters, D.A. (2001) *Journal of Experimental Biology*, **204**: 575–583; Jones, G., Vaughan, N. & Parsons, S. (2000) *Acta Chiropterologica*, **2**: 155–170; and many abstracts and popular science articles. To use the much younger *P. mediterraneus* now would create immense confusion.

Nomenclatural Notes

The authorship and date of the specific name of *Ursus* or *Thalarctos maritimus*, the polar bear, is Phipps (1774) and not Linnaeus (1758)

Anthea Gentry

ICZN Secretariat, c/o The Natural History Museum, Cromwell Road,
London SW7 5BD, U.K.

In 1934 C.W. Stiles (the first Secretary to the Commission) sought to place several generic names for carnivores on the Official List. The name *Thalarctos* Gray, 1825 (p. 62, published as a subgenus of *Ursus* Linnaeus, 1758, type species by monotypy *T. polaris* Gray, 1825) was one of those considered. A number of mammalogists, including Dr Angel Cabrera (a Commissioner from Argentina), were invited to comment. Dr Cabrera stated that the specific name of *Ursus maritimus*, already known as a senior synonym of *T. polaris* and usually cited from Phipps (1774) or Erxleben (1777), dated from Linnaeus (1758). This authorship and date (Linnaeus, 1758) for *maritimus* was incorporated into the eventual ruling on the case (Opinion 384, April 1956; see Opinions and Declarations 12: 71–190) and recorded in subsequent compilations of Commission rulings: *The Official List of Specific Names in Zoology* (1958), *Official Lists and Indexes of Names and Works in Zoology* (1987), and *Official Lists and Indexes of Names and Works in Zoology, Supplement 1986–2000* (2001).

Linnaeus (1758, p. 47), however, recorded '*Ursus maritimus albus major, arcticus*' under *Ursus arctos* (the brown bear), and he did not adopt 'maritimus' as a valid, or even binominal, name. In these circumstances 'maritimus' is not available (Articles 5.1 and 11.5 of the Code). Linnaeus referred to Martens's (1675, p. 73, pl. O, fig. C) description and illustration in *Spitzbergische oder Groenlandische Reise Beschreibung* and noted 'forte distincta species est, nobis non visa' [perhaps a different species, I have not seen it], indicating that he doubted that it was a true species distinct from the brown bear.

The entry for '*Ursus maritimus albus major*' in Linnaeus's *Systema Naturae*, Ed. 12 (1766) is a repeat of that in Ed. 10 (1758) with the added words 'capite longiore, collo angustiore'.

It seems that the first author to make available a name for the polar bear was Phipps (1774, p. 185). His description of *Ursus maritimus* was very brief ('This animal is much larger than the black bear'), but measurements were given and there was an unambiguous reference to Pennant's (1771) *Synopsis of quadrupeds*, which included a detailed description and illustration (p. 192, pl. 20, fig. 1) of the 'Polar Bear' (but no latin name). The reference to Pennant's text and plate renders Phipps's name available by indication (Articles 12.2.5 and 12.2.7) even if Phipps's own description is considered to be insufficient for availability.

Subsequently the name *Ursus maritimus* was adopted in Schreber (pl. 141, 1776 and p. 513, 1777), Erxleben (1777, p. 160) and Gmelin (1788, p. 101). Nineteenth century authors cited the name *maritimus* from a variety of sources, including those just mentioned, but rarely from Linnaeus (1758). Palmer (1904) was probably the first

to cite the name from Phipps (1774) and this has been followed by nearly all subsequent authors.

It is clear that attribution of the name *maritimus* to Linnaeus (1758) in Opinion 384 was an error. Authors both before (see, for example, Ellerman & Morrison-Scott, 1951) and after (for example, Corbet, 1978 and Wilson & Reeder, 1993) the 1956 ruling have cited Phipps (1774) as the author and date of the name; this practice should be continued and the entry on the Official List should be corrected.

The name *Ursus marinus*, independently proposed by Pallas (1776, p. 691), is a junior synonym of *Ursus maritimus* Phipps, 1774.

References

- Corbet, G.B.** 1978 *The mammals of the Palaearctic Region: a taxonomic review*. 314 pp. British Museum (Natural History), London.
- Ellerman, J.R. & Morrison-Scott, T.C.S.** 1951. *Checklist of Palaearctic mammals 1758 to 1946*. 810 pp. British Museum, London.
- Erxleben, J.C.P.** 1777. *Systema Regni Animalis . . . Classis I, Mammalia*. xviii, 636, [64] pp. Lipsiae.
- Gmelin, J.F.** 1788. *Caroli a Linné, Systema Naturae*, Ed. 13, vol. 1, part 1 (Mammalia). xii, 232 pp. Lipsiae.
- Gray, J.E.** 1825. On the genus *Ursus* of Cuvier, with its divisions into subgenera. *Annals of Philosophy*, (N.S.)**10**: 59–62.
- Linnaeus, C.** 1758. *Systema Naturae*, Ed. 10, vol. 1. 824 pp. Salvii, Holmiae.
- Linnaeus, C.** 1766. *Systema Naturae*, Ed. 12, part 1. 530 pp. Salvii, Holmiae.
- Martens, F.** 1675. *Spitzbergische oder Groenlandische Reise Beschreibung . . . 1671*. [6], 232, 3 pp., [14] pls. Hamburg.
- Pallas, P.S.** 1776. *Reise durch verschiedene Provinzen des Russischen Reichs*, vol. 3. [18], 760, 23 pp. St Petersburg.
- Palmer, T.S.** 1904. *Index Generum Mammalium: a list of the genera and families of mammals*. 984 pp. North American Fauna, No. 23. U.S. Department of Agriculture, Washington.
- Pennant, T.** 1771. *Synopsis of quadrupeds*. xxv, 382 pp. Chester.
- Phipps, C.J.** 1774. *A voyage towards the North Pole undertaken . . . 1773*. viii, 253 pp., 14 pls. Nourse, London.
- Schreber, J.C.D. von.** 1776, 1777. *Die Säugthiere*, vol. 3. Pls. 92B, 139–145 (1776), pp. 457–584 (1777). Leipzig.
- Wilson, D.F. & Reeder, D.M.** (Eds.). 1993. *Mammal species of the world. A taxonomic and geographic reference*, Ed. 2. xviii, 1206 pp. Smithsonian Institution Press, Washington.

Availability of zoological names published in theses

P.K. Tubbs

Executive Secretary, International Commission on Zoological Nomenclature

The Commission Secretariat is frequently asked about the availability of names (and nomenclatural acts, such as the designation of type species) from their publication in theses, and it may be helpful to state the position.

There has never been a provision in the Code to the effect that a name or act cannot be made available from its appearance in a thesis. It follows that if a thesis is 'published' in the sense of the Code (Articles 8 and 9) names and acts in it will be available if the other necessary conditions are met.

However, extremely few theses count as published works, because nearly all fail to meet all the requirements of those Articles. Even if numerous copies are printed these are usually only deposited in prescribed libraries or distributed to colleagues of the author — they are not ‘obtainable, when first issued, free of charge or by purchase’ by the zoological public, and therefore they do not satisfy Article 8.1.3; the subsequent supply of copies in response to individual requests would not satisfy Article 9.7.

Abstracts of theses often appear in works which clearly are published in the sense of the Code; a name could be available from such an abstract but only if qualifying information (e.g. description and typification of the taxon) also appeared in it. This is not usually the case, however, and after 1999 is particularly unlikely in the case of a species since under Article 16.4 a holotype or syntypes must be explicitly fixed to establish the name.

Many theses do contain proposed new names and nomenclatural acts, since these are indispensable for treatment of the subject matter. The author of such a thesis should include in it a disclaimer (Article 8.2) to the effect that the thesis is not to be taken as published for the purposes of zoological nomenclature or within the meaning of the Code. Disclaimers should also be provided by editors of all works which include abstracts of theses so that names and acts are not made available unintentionally. As a corollary of this, people who are aware of new names in theses should take great care not to cite those names in their own publications before the author has made them available.

The recommendations in Appendixes A and B of the Code and those attached to Articles 8 and 9 give further guidance on the publication of new taxonomic names.

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IN RULINGS OF THE COMMISSION PUBLISHED IN VOLUME 58 (2001),
WITH CORRECTIONS OF EXISTING FAMILY-GROUP LIST AND INDEX
ENTRIES**

Names placed on the Official Lists and Indexes, and emendments of existing entries, in Volume 58 are listed below under three headings: Family-Group Names, Generic Names and Specific Names. Entries on the Official Lists are in bold type and those on the Official Indexes in non-bold type. Additionally, an article by Prof P. Bouchet and Dr J.-P. Rocroi (pages 170–178) corrected or commented on a number of entries for gastropod family-group names already placed on the Official List or Index but with an erroneous or uncertain source of original publication; these names are incorporated under the heading ‘Family-Group Names’.

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- Bania** Brusina, 1896 (Gastropoda) Op. 1965
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Cylicostomum Railliet, 1901 (Nematoda) Op. 1972
Cylichnostomum Looss, 1901 (Nematoda) Op. 1972
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Doris Linnaeus, 1758 (Gastropoda) Op. 1980
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- adamii**, **Hyalinia villae**, Westerlund, 1886 (Gastropoda) Op. 1979
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- catinatum**, *Cyathostomum*, Looss, 1900 (Nematoda) Op. 1972
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